

OBSERVATIONS ON THE MAMMALS OF TUCUMÁN PROVINCE,
ARGENTINA. I. SYSTEMATICS, DISTRIBUTION, AND
ECOLOGY OF THE DIDELPHIMORPHIA, XENARTHRA, CHIROPTERA,
PRIMATES, CARNIVORA, PERISSODACTYLA,
ARTIODACTYLA, AND LAGOMORPHA

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ABSTRACT

The systematics, distribution, and ecology of the Didelphimorphia, Xenarthra, Chiroptera, Primates, Carnivora, Perissodactyla, Artiodactyla, and Lagomorpha of Tucumán Province, Argentina, are summarized. Sixty-eight species belonging to 16 families are considered; two species are of probable occurrence (*Tayassu pecari* and *Myrmecophaga tridactyla*), and another species occurred in the province within the memories of locals living in the area (*Cebus apella*). A checklist also contains information on occurrence and status. Species accounts provide data on taxonomy, specimens examined and additional records, standard external and cranial morphological measurements, reproduction, molting, habitat preferences, general natural history, and other information. Geography, climate, and vegetation of the province are summarized. Mammal extirpations, potential threats to species, and mammalian conservation are discussed.

RESUMEN

La sistemática, distribución, y ecología de los Didelphimorphia, Xenarthra, Chiroptera, Primates, Carnivora, Perissodactyla, Artiodactyla, y Lagomorpha de la provincia de Tucumán son resumidas. Sesenta y ocho especies perteneciendo a 16 familias son consideradas; también se incluye dos especies que probablemente ocurren en la provincia (*Tayassu pecari* y *Myrmecophaga tridactyla*) y otra que ocurría allí según los relatos de habitantes de la zona. Una lista de especies conteniendo información sobre ocurrencia y estatus está incluida. La historia natural de las especies incluye información sobre taxonomía, reproducción, medidas, muda, y habitat. También se comenta sobre la geografía, clima, y vegetación de la provincia. Aspectos importantes de la conservación de varias especies son mencionadas.

INTRODUCTION

The small province of Tucumán is located in northwestern Argentina (Fig. 1). Its small size notwithstanding (22,524 km², about the size of New Hampshire),

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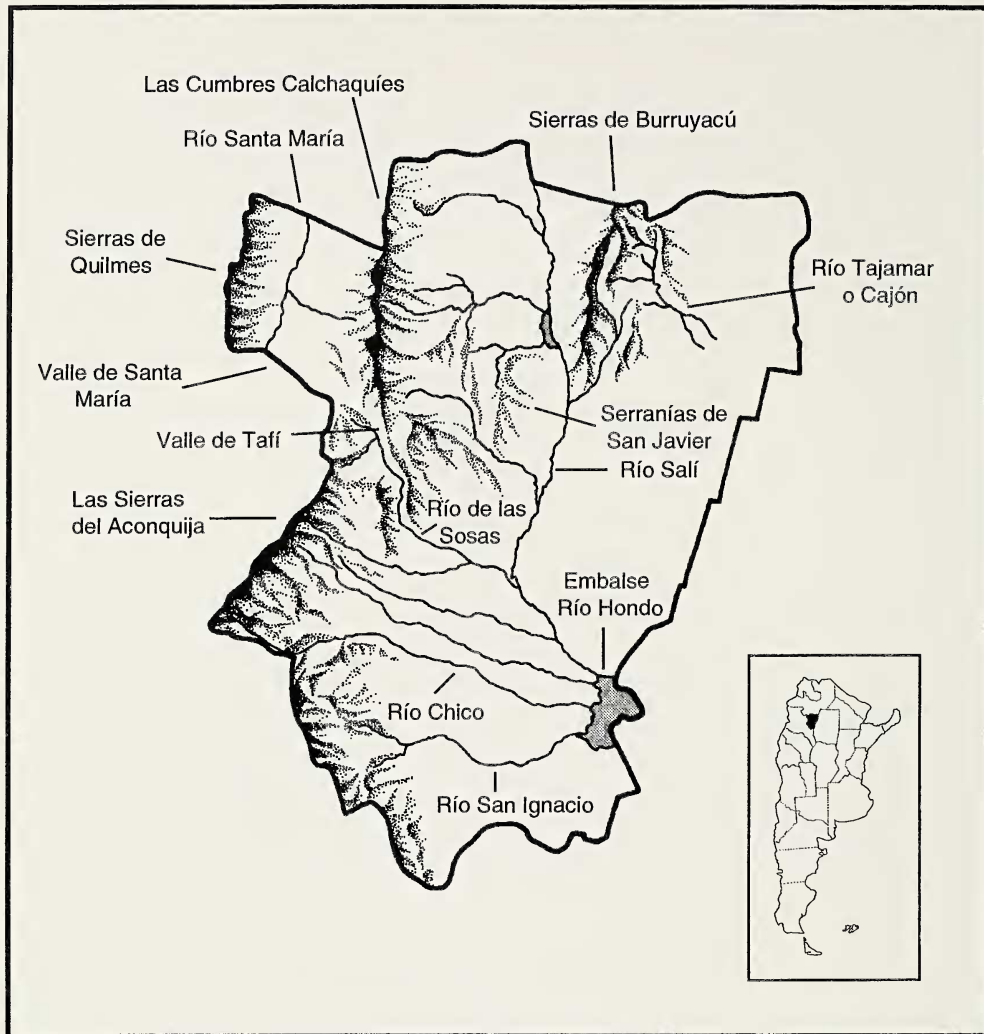


Fig. 1.—Map showing the location of Tucumán Province in Argentina and the major mountain chains and rivers.

Tucumán is both exceptionally rich in the diversity of habitats that it supports, as well as in its vertebrate fauna. Indeed, with more than 100 species of mammals known to occur in the province, and many yet to be found, its richness of mammal species would suggest an area of much greater geographic extent. For example, the state of New Mexico, a large, topographically diverse area, supports 149 species of native mammals (Findley, 1987), a number that is somewhat higher than the number of species that will ultimately be found to occur in Tucumán. Yet New Mexico is 14 times larger than Tucumán.

Clearly, Tucumán's rich floristic diversity, great topographic relief, varied patterns of precipitation, and location at a conjunction of major macrohabitats (Ojeda and Mares, 1989) just slightly south of the Tropic of Capricorn, provide a mixture

of factors that has led to the province's high richness of mammal species. Moreover, because one of Argentina's oldest cities is in the province (San Miguel de Tucumán—founded in 1565 and the city where Argentine independence from Spain was established in 1816), and because the city is an important agricultural and educational center, especially in the biological sciences, there have been many investigations of the province's biota. These have included extensive studies on the flora of the province (e.g., Meyer, 1963; Digilio and Legname, 1966; Morello and Adámoli, 1968), as well as a number of reports on Tucumán's mammals (e.g., Olrog, 1958, 1959, 1976; Olrog and Lucero, 1981; Lucero, 1983; Bárquez et al., 1991). Nevertheless, our recent field work surveying the mammals of the province continues to discover species new to the province and taxa (species and genera) new to science, indicating that the province cannot yet be considered to be well studied from the viewpoint of its mammals.

Although a popular guide to the mammals of Tucumán Province was recently published (Bárquez et al., 1991), neither it, nor the earlier works of various authors, provided detailed information on the distribution, systematics, or other technical aspects of the biology of the province's mammals. In this report, we provide data on the nonrodent fauna of Tucumán. (We will deal with the province's complex rodent fauna in a subsequent paper.) We also review the physical setting of the province, its floral richness, its climate, and its history, for all of these have influenced the number of species of mammals that today occurs in the province. Finally, we place our observations in a conservation perspective, so that the status and importance of Tucumán's mammals can be better appreciated and understood.

GEOGRAPHY

Tucumán is the smallest of Argentina's provinces. Within its borders are a diversity of habitats that extend from the Chacoan lowlands in the east to the complex vegetation of the high mountains in the west. Tucumán contains a great deal of topographic diversity, ranging from low hills and small mountains in the east and northeast, to Andean massifs in the west. There are three major orographic systems in Tucumán (Fig. 1). In the western parts of the province, Las Cumbres Calchaquíes and Las Sierras del Aconquija extend from the northern to the southern borders. The Cumbres Calchaquíes, the southernmost extension of the eastern Andean Cordillera, reach elevations of approximately 4500 m; in addition to high, snow-covered peaks, the high mountains form many valleys and lakes. Numerous valleys having economic importance as ranchlands, farmlands, and tourist centers are found in the western highlands. One montane valley that is especially important is the Valle de Tafí, which is a rich bunchgrass prairie that crosses the Abra de Infiernillo at 3042 m and extends northward to the arid Valle de Santa María. The depression formed by these two valleys separates the Cumbres Calchaquíes from the Sierras del Aconquija. The latter are composed of many mountains, among them Cerro Muñoz, the Cerros de las Animas, the Nevados del Aconquija, and the Sierras de Santa Ana. Near the center of the province, just to the west of the capital city of San Miguel de Tucumán, is a series of low mountain formations known as the Serranías de San Javier, mountains covered with a verdant subtropical forest.

The Sierras de Burrucacú are a sub-Andean chain found in northeastern Tucumán. The easternmost mountains of the province include the Sierra de Medina, Cumbre del Nogalito, Sierra de la Ramada, and Sierra del Campo. These ranges

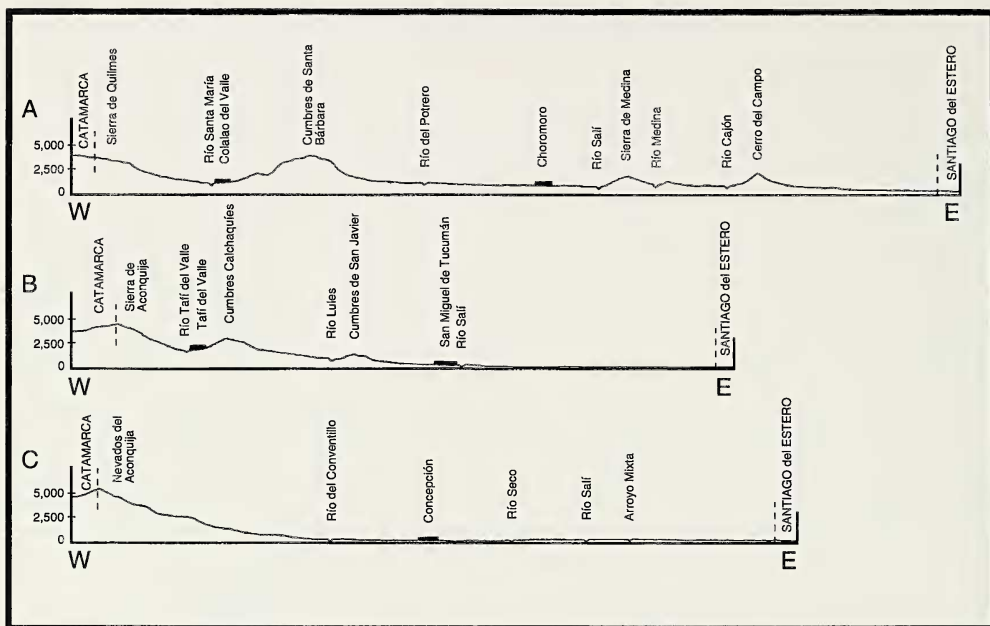


Fig. 2.—Three east-west topographic profiles through the province of Tucumán showing major geographic features taken along: A, latitude $26^{\circ}25'$; B, latitude $26^{\circ}50'$; and C, latitude $27^{\circ}20'$. Height is in meters above sea level. Population centers are designated by black rectangles.

are generally considered the extreme southern limit of the sub-Andean mountains, which are most extensive in Salta and Jujuy provinces to the north (Anonymous, 1981).

West of the Sierras del Aconquija and forming the extreme northwestern boundary of the province is a fourth mountain system, composed of the eastern faces of the Sierras de Quilmes that border the Valle de Santa María on the west, with the Cumbres Calchaquíes bordering the valley on the east. The southern edges of these ranges are located in adjacent Catamarca Province. Indeed, the Cerro del Bolsón in southern Tucumán along the Catamarca border is the highest point in the province at 5550 m.

The great elevational variation in the province is a major factor contributing to its wide array of habitats. An indication of the topographic diversity of the province is given in Figure 2, which illustrates three topographic profiles across Tucumán at approximately $26^{\circ}30'$, $26^{\circ}52'$, and $27^{\circ}16'$ south latitude. The low, flat plain in the eastern part of the province corresponds to the "great Tucumán plain"; the gradual decline in elevation of the mountain ranges as one proceeds southward and eastward is also depicted. Figure 1 shows the major mountain chains and rivers of Tucumán.

CLIMATE

Climatically, the province is at the limits of both the subtropical and the temperate regions. Thus, the area does not experience four distinct seasons, but rather has two well-defined ones. Summer months are hot and humid and winter months are cool and dry. Additionally, its pronounced elevational relief means that major

climatic zones will appear at different elevations in the mountains. Three basic climate types are distinguishable within Tucumán: tropical with a dry season in the northern and eastern portions, tropical montane in the central low mountains, and subtropical arid in the high mountains and western lowland valleys.

Temperate climates characterize the higher mountainous regions of the province, but most of the province is influenced by the tropical montane climate. This is due to the north–south orientation of the mountain ranges that interrupt the westward movement of winds carrying moisture from the Atlantic Ocean. The humidity originating from the southern Atlantic air mass is retained by the transverse mountains, where orographic rain falls primarily on the eastern slopes. This produces a thick accumulation of clouds, generally between 2000–2500 m elevation in the mountains of central and west-central Tucumán, which may produce large amounts of rain. As might be expected, this rain results in rich floristic diversity along the eastern slopes and at mid elevations on the mountains.

As the air mass continues to move westward, it becomes progressively more arid, until the drier climates of the western portions of the province develop. The subtropical climatic region, which has a distinct dry season, is restricted to a narrow band located in the eastern part of the province and a second narrow band in the arid mountains and lowland valleys that characterize western Tucumán.

Most rivers in Tucumán descend from the eastern slopes of the mountains and unite in the valleys and ravines. The hydrology of the province is defined by the Río Salí River basin (north-central Tucumán), the Río Santa María (northwestern Tucumán), the Río Tajamar or Cajón (northeastern Tucumán), and several montane rivers in the south (Fig. 1).

Rainfall in the province is greatest along the central mountain chains, reaching 3000 mm annually in the forests on the east-facing montane slopes just west of the capital city of San Miguel in the Serranías de San Javier. Both in far eastern Tucumán and in the far western parts of the province rainfall decreases markedly, with dry thorn scrub resulting in the east and desert scrublands in the west.

VEGETATION

Tucumán supports a complex variety of major phytogeographic areas due to the province's diverse topography, climate, and hydrology. The general pattern of macrohabitats is shown in Figure 3. For a more detailed description of the plants comprising these various vegetational communities, the reader should consult Cabrera (1976), whose findings are summarized here.

Three Neotropical dominions (each containing a number of major macrohabitats) are found in Tucumán. The Amazonian Dominion is represented by the Yungas Phytogeographic Province, the Chaco Dominion is represented by the Chaco, Prepuna, and Monte Phytogeographic provinces, and the Andean–Patagonian Dominion is represented by the High Andean and Puna Phytogeographic provinces. We describe these briefly.

Yungas Phytogeographic Province.—The eastern plain of Tucumán originally supported a transitional forest with dominants that included the trees *tipu* and *pacará* (*Tipuana tipu* and *Enterolobium contortisiliquum*). According to Meyer and Weyrauch (1966), the plain also supported native cedars, i.e., *cedro* (*Cedrela lilloi*), *lapachos* (*Tabebuia avellanadae*), and *cébiles* (*Piptadenea macrocarpa*). Since this forest primarily occurred in areas that have been subjected to extensive human habitation over more than four centuries, it has largely disappeared, being

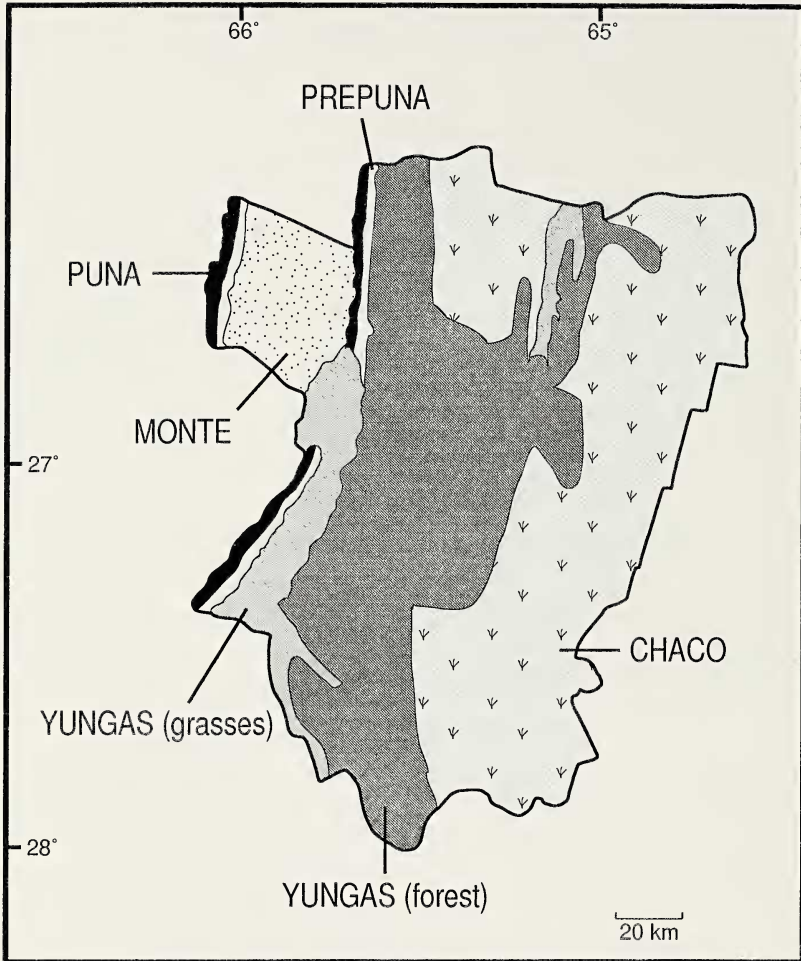


Fig. 3.—Some of the principle macrohabitats of Tucumán Province (after Cabrera, 1976; Vervoorst, 1982).

replaced by orchards and plantations of sugar cane and tobacco (Cabrera, 1976; see also Roig, 1991).

The eastern montane slopes of the central mountains support humid montane forest (Vervoorst, 1982), which is frequently divided into three forest types on the basis of elevation. The basal forest (or laurel forest) is found between 400–800 m elevation and includes laurel (*Phoebe porphyria*), palo amarillo (*Terminalia triflora*), tarco (*Jacaranda mimosifolia*), tabaquillo (*Solanum verbascifolium*), tipa (*Tipuana tipu*), lapacho (*Tabebuia avellanadae*), nogal (*Juglans australis*), cedro (*Cedrela lilloi*), and San Antonio (*Rapanea laetevirens*). A forest of miraceteous trees lies between 800–1400 m. This forest is dominated by horco molle (*Blepharocalyx gigantea*), and guil (*Eugenia pseudomato*), as well as several dominant trees in other families, roblina (*Ilex argentina*), Tucumán laurel (*Phoebe porphyria*), nogal (*Juglans australis*), cedro (*Cedrela lilloi*), and some elements from the lower-elevation forest. An alder forest (*Alnus jorullensis*) is found at the



Fig. 4.—The montane subtropical forest of central Tucumán. (Photograph by M. A. Mares.)

highest elevations (from 1400–2100 m) and occasionally intermixes with pine (*Podocarpus parlatorei*) forests (Meyer, 1963).

At the higher elevations, in areas where soil conditions or microclimate lead to drier conditions, there is an increase in grasses, especially bunch grasses such as *Festuca*, *Stipa*, *Chloris*, and *Calamagrostis*. Queñoales “pines” (*Polylepis australis*) occur in ravines lying between 1900–2300 m, although in some regions they are found up to 3000 m elevation. The two lower levels are characterized by largely Neotropical plant species, but the upper elevation forest exhibits a number of Holarctic elements, including *Alnus*, *Juglans*, *Anemone*, *Ranunculus*, *Thalictrum*, and *Geranium*. These species extended their distributions southward along the Andean Cordillera during earlier geologic periods.

The montane forest, excluding the monospecific stands of alders and conifers, is normally a dense forest in which various strata are differentiated according to light requirements. Trees of the upper stratum reach approximately 30 m in height and include such species as laurel (*Phoebe porphyria*), horco molle (*Blepharocalyx gigantea*), cedars (*Cedrela*), horco cébil (*Piptadenia excelsa*), and nogal (*Juglans australis*). The second stratum is formed by trees that do not exceed 20 m in height—cochucho (*Fagara coco*), San Antonio (*Rapanea laetevirens*), ramo (*Cupania vernalis*), chalchal (*Allophylus edulis*), and palo luz (*Prunus tucumanaensis*). The shrub stratum is characterized by ramo tucumano (*Boehmeria caudata*), hediondilla (*Solanum lorentzi*), *Celtis triflora*, *Piper tucumanus*, *Urera baccifera*, *Miconia ioneura*, *Cestrum lorentzianum*, and *Psychotria carthagenensis*. The lowest stratum is dominated by helecho (*Pteris deflexa*) and the herbaceous stratum by *Oplismenus hirtellus*, *Panicum* cf. *demissum*, and *Axonopus compressus*. Throughout this forest, vines, lianas, and epiphytes are abundant, especially on the laurels and tipas; mosses, lichens, and ferns are abundant on the ground. Forest canopy vegetation is shown in Figure 4.

Chaco Phytogeographic Province.—The Chaco Phytogeographic Province is



Fig. 5.—The montane Chacoan forest of northern Tucumán Province at Las Juntas, 22 km W Choromoro. (Photograph by J. K. Braun.)

found on the large extension of the flat plain of eastern Tucumán where the Chaco proper reaches its western limit. The Chaco, a xerophytic forest with floristic affinities to the monte desert and the high elevation prepuna, is an extensive thorn scrub characterized by *Schinopsis lorentzii* and numerous thorny trees, such as species in the genera *Cercidium*, *Acacia*, *Prosopis*, and *Geoffroea*. Chaco serrano, or montane Chaco, characterizes the lower slopes of the drier eastern mountain ranges and the western slopes of the mountain ranges located to the east and northeast of the Sierras de San Javier. In this area, the Chaco is characterized by quebracho montano (*Schinopsis haenkeana*). In general, the Chaco has been heavily exploited throughout the province, resulting in invasions of vinal (*Prosopis ruscifolia*) from the northeast and jarilla (*Larrea* spp.) from the south.

The Chaco of Tucumán, with annual precipitation ranging from 500–800 mm, is much drier than the eastern Chaco of north-central and eastern Argentina (Fig. 5). A major Chacoan plant community in Tucumán is the quebrachal community, composed of trees of quebracho colorado (*Schinopsis lorentzii*) and quebracho blanco (*Aspidosperma quebracho-blanco*). Other important trees include itín (*Prosopis kuntzei*), algarrobo negro (*Prosopis nigricans*), chañar (*Geoffroea decorticans*), mistol (*Zizyphus mistol*), quayacan (*Caesalpinia paraguariensis*), and sombra de toro (*Jodina rombifolia*). Cardones (*Trichocereus* and *Cereus*), quimil (*Opuntia quimilo*), and other cacti and epiphytic bromeliads are also present.

Monte Phytogeographic Province.—In Tucumán, the monte is limited to areas west of the Cumbres de Calchaqués. Throughout this region rain is scarce (never more than 200 mm annually) and falls primarily between October and March (summer), peaking in January. Average annual rainfall (based on 47 years of records) at Santa María, Catamarca Province, immediately south of the Tucumán border in the monte desert, is 181.7 mm (Morello, 1958). In Tucumán Province proper, average annual rainfall does not exceed 160 mm at Colalao del Valle and



Fig. 6.—The monte desert of northwestern Tucumán Province at the Quilmes ruins. (Photograph by J. K. Braun.)

Amaicha del Valle (based on eight years of data). The monte is characterized by jarilla, or creosotebush (*Larrea divaricata* and *Larrea cuneifolia*), and various trees and shrubs (*Prosopis*, *Tricomaria*, *Mimosa*, *Bulnesia*, *Cassia*) (Fig. 6). Intermontane forests formed by *Prosopis flexuosa*, *Geoffroea decorticans*, *Acacia visco*, and *Atamisquea emarginata* extend along temporary rivers or along the borders of the dry western valleys (Vervoort, 1982). Columnar cacti (*Trichocereus*) are also common.

Prepuna Phytogeographic Province.—In the provinces of Tucumán, Catamarca, and La Rioja, this phytogeographic province is generally found at elevations between 2000–3000 m and is located either between the Chaco and Puna Phytogeographic provinces, or between the Monte and Puna Phytogeographic provinces (Cabrera, 1976). In general, the presence or absence of the prepuna depends upon the altitude, arrangement, and orientation of the mountain ranges. The climate is dry and rainfall occurs in the summer. It is strongly related to the Monte Province, but differs fundamentally by the absence of *Larrea* and by the abundance of many species of columnar cacti (genus *Trichocereus*) and terrestrial, ring- or cushion-shaped ground bromeliads (*Dyckia*, *Deuterocohnia*, *Abromeitiella*). Prepuna plant communities (Fig. 7) are able to grow on rocky mountain slopes with both eastern and western exposures (Vervoort, 1982).

Puna and High Andean Phytogeographic Provinces.—In Tucumán, the Andean Patagonian Domain is represented by the Puna and High Andean Phytogeographic provinces (Fig. 7). The latter is found in high mountain regions from the peaks down to the tree line. In Tucumán it occurs on the Aconquija range and the Nevados del Cajón. Normally, the soils in the high Andean Phytogeographic Province are rocky, stony, or sandy. Bogs may occur in moist areas. The montane climate is cold and dry, and the winds strong. There are only two endemic families of plants in this province, but there are a number of endemic genera. The dominant



Fig. 7.—The prepuna northwest of El Infiernillo above Taffí del Valle. Puna vegetation can be seen in the background on the higher slopes. (Photograph by J. K. Braun.)

vegetation is grassland steppes or steppes of low-growing plants having large roots (e.g., *Adesmia*, *Baccharis*, *Oxalis*, *Senecio*). The puna occurs on high mountains and plateaus, typically between 3400–4500 m. The soils are poor in organic material and are frequently rocky or sandy. The dominant vegetation is the shrub steppe, although herbaceous steppes and bog areas are not uncommon. The puna is related to the Patagonian region and many dominant plant genera are shared between them, including *Junellia*, *Fabiana*, *Chuquiraga*, *Nardophyllum*, *Adesmia*, and *Mulinum* (Cabrera, 1976).

METHODS

General.—Specimens were collected using standard Museum Special snap traps, Victor rat traps, Havahart traps (48 × 15 × 15 cm), gopher traps, leg-hold traps, Sherman live traps (7.6 × 7.6 × 25.4 cm and 12.7 × 12.7 × 38.1 cm), home-made live traps, mist nets, and .22 caliber rifles. All specimens were prepared as skins plus skulls or skeletons, or preserved in 10% formalin and alcohol. Beginning in 1990, tissues were collected and frozen in liquid nitrogen and representative specimens were karyotyped. Data collected included standard external measurements, reproductive condition, and molting pattern. Ecological or natural history data were noted when specimens were collected ancillary to ecological or physiological research. Specimens collected by us over the past quarter century are deposited in the following museums: Carnegie Museum of Natural History, Pittsburgh; Colección Miguel Lillo, Instituto Miguel Lillo, Tucumán; IADIZA, Colección de Mamíferos, Mendoza; Oklahoma Museum of Natural History, University of Oklahoma, Norman; Texas Cooperative Wildlife Collection, Texas A & M University, College Station (frozen tissues and chromosomal preparations).

Taxonomy.—We have chosen to follow, with four exceptions, the most recent

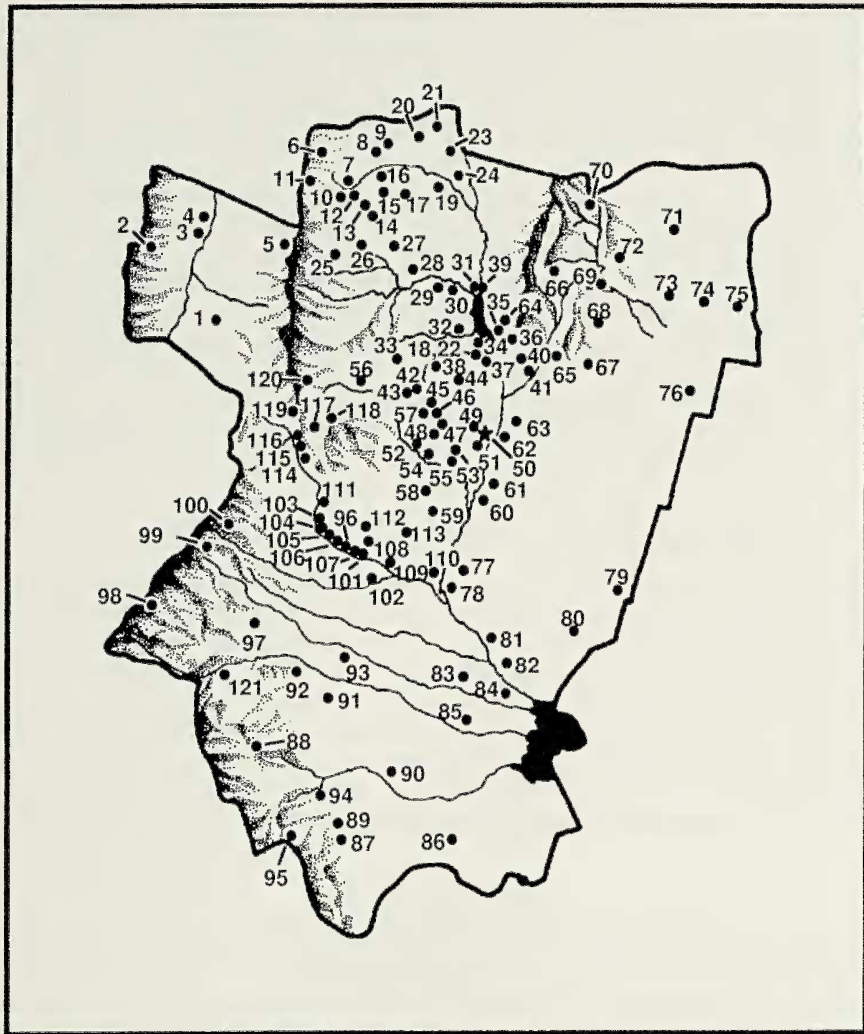


Fig. 8.—Collecting localities for mammals listed in the text. Numbers correspond to those given in the Gazetteer.

edition of “Mammal Species of the World: A Taxonomic and Geographic Reference” (Wilson and Reeder, 1993) for the taxonomic arrangement of families, subfamilies, genera, and species. *Sturnira oporaphilum* is used instead of *S. bogotensis*. Based on studies using allozyme and mitochondrial DNA data (Baker et al., 1988; Morales and Bickham, 1995), we recognize *Lasiurus blossevillii* for the South American red bats. *Eumops patagonicus* is recognized as a distinct species; this species is included in *Eumops bonariensis* in Wilson and Reeder (1993). We follow Garcia-Perea (1994) in the recognition of *Lynchailurus* as a distinct genus containing three species; *L. pajeros* is found in Tucumán Province.

Collecting Localities.—The principal localities for specimens cited in the text in Tucumán Province are shown in Figure 8. The Gazetteer lists the localities and

coordinates of south latitude and west longitude in degrees and minutes for all specimens cited in the text that could be located. Localities are listed alphabetically and numerically; departments and numbers corresponding to numbered localities in Figure 8 are given in parentheses. Coordinates were obtained from Gazetteer No. 103 (Argentina) of the United States Board of Geographic Names prepared by the Office of Geography, Department of Interior, Washington, D. C. (Anonymous, 1968), used in conjunction with various maps. Localities have been kept as they appeared on the original labels, except for obvious misspellings. Maps of Tucumán published by the Automóvil Club Argentino (1974, 1977, 1982, 1986), the series of 1:500,000 provincial maps published the Ejército Argentino, Instituto Geográfico Militar in 1966 (number 2966) and 1972 (number 2766), and the 1:250,000 maps of the province published by the Ejército Argentino, Instituto Geográfico Militar in 1986 (number 2766-IV), 1987 (number 2766-III), and 1988 (number 2766-I) were used to plot localities. Aeronautical maps TPC Q-27A (1:500,000; 1988) and Q-27 (1:1,000,000; 1973), prepared and published by the Defense Mapping Agency Aerospace Center, were also used to plot localities.

CHECKLIST OF THE MAMMALS OF TUCUMÁN PROVINCE

A list of the orders, families, genera, and species of mammals known or expected to occur in Tucumán Province, Argentina, is given in Table 1. The designations of relative abundance are largely subjective and are based on our long experience with the species of the province. We present them only to guide biologists as to which species might be of special concern for conservation and which might be relatively easy to study in the province. In some cases, we have actual mark-recapture data, or collecting data, to estimate commonness or rarity. In other cases, we have formed impressions as to whether or not a species is common or rare based on experiences in capturing or observing the species.

SPECIES ACCOUNTS

In the following sections we present the individual species accounts for those mammal species known to occur in Tucumán Province. Accounts are arranged according to order, family, and subfamily (where appropriate). Genera and species are arranged alphabetically within families or subfamilies. For each scientific name, the authority and literature citation for the first recognized description are given. In the measurements presented for each species, mean and range for adult males and females are listed separately. For two or fewer specimens, only the measurements are listed. Measurements are given in millimeters.

Specimens from the following museum collections (acronyms given in parentheses) were examined: The Natural History Museum, London, England (BMNH); Carnegie Museum of Natural History, Pittsburgh, Pennsylvania (CM); Colección Lillo, Instituto Miguel Lillo, Tucumán, Argentina (CML); Colección de Mamíferos, Centro Regional de Investigaciones Científicas y Técnicas—CRICYT, Mendoza, Argentina (IADIZA); Facultad Ciencias Exactas y Naturales, Mamíferos, Universidad Nacional de Buenos Aires, Buenos Aires, Argentina (FCM); Museo Argentino de Ciencias Naturales "Bernardino Rivadavia," Buenos Aires, Argentina (MACN); Oklahoma Museum of Natural History, University of Oklahoma, Norman, Oklahoma (OMNH); personal collection of Rubén Márquez, Tucumán, Argentina (RMB); The Museum, Texas Tech University, Lubbock, Texas (TTU).

Order Didelphimorphia
Family Didelphidae
Subfamily Didelphinae
Didelphis albiventris Lund

Didelphis albiventris Lund, Konigelige Danske Videnskabernes Selskabs Afhandling, Kjöbenhavn, p. 20, 1840.

Specimens Examined.—(26) Aconquija, Concepción, 5 (BMNH); Cerro del Campo, 800 m, 1 (BMNH); El Cadillal Dike, 25 km NW San Miguel de Tucumán, 2 (CM); El Cajón, 1 (CML); 4 km W of junction 338 and road to Horco Molle, on road to San Javier, 2,750 ft., 1 (OMNH); Biological Reserve at Horco Molle, 2,400 ft., 3 (1 CML, 1 IADIZA, 1 OMNH); Los Romanos, 1 (CML); Mala Mala, 1 (BMNH); Escuela Normal, Monteros, 1 (MACN); Piedra Tendida, 12 km WNW Burruyacú along Río Cajón, 2,500 ft., 2 (1 IADIZA, 1 OMNH); San Fernando, 1 (CML); San Pedro de Colalao, 3 (CML); at km marker 42, on highway 364, south of San Pedro de Colalao, 4,700 ft., 3 (1 CML, 1 IADIZA, 1 OMNH); Tucumán, no specific locality, 1 (BMNH).

Additional Records.—Aguas Chiquitas (Cajal, 1976); Pozo Hondo (R. M. Báñez, personal observation); Dique Escaba (J. K. Braun, personal observation); Santa Rosa de Leales (Massoia and Fornes, 1965); Tafí del Valle (J. K. Braun, personal observation).

Measurements.—External measurements (eight males, ten females, unless noted otherwise): total length, 518.5 (292.0–723.0), 588.2 (370.0–770.0); tail, 237.4 (84.0–337.0), 294.6 (175.0–390.0); hindfoot, 45.0 (32.0–54.0), 46.0 (30.0–60.0); ear, 49.7 (40.0–55.0), 50.2 (39.0–56.0); weight (four males, four females), 331.0 (210.0–508.0), 354.8 (144.0–910.0). Cranial measurements (two males, four females, unless noted otherwise): greatest length of skull, 77.5, 94.0, 77.4 (52.0–93.9); condylobasal length, 76.0, 91.0, 75.1 (45.7–91.8); least interorbital length, 10.0, 10.7, 10.2 (9.8–10.6); zygomatic breadth, 38.7, 53.6, 40.8 (28.0–48.3); breadth of braincase (two males, three females), 21.0, 27.4, 24.6 (23.7–25.8); length of maxillary toothrow, 21.0, 36.1, 27.7 (18.9–35.6); palatal length (one male, four females), 55.1, 45.0 (30.2–54.2); length of mandibular toothrow (one male, two females), 37.5, 32.3, 37.9; greatest length of mandible (one male, two females), 76.6, 60.0, 73.6.

Reproduction.—See Table 2.

Molt.—A subadult female and male were molting in January.

Habitat.—This species is widely distributed throughout Argentina from north of 41°S latitude in Río Negro Province northward. Specimens were collected in transitional forest, areas bordering transitional forest, and in pine forest. Individuals were captured in Havahart traps, Sherman live traps, and in Victor rat traps. Both individuals from Piedra Tendida were captured in Havahart traps baited with either lunchmeat or sardines (M. L. Campbell, personal observation). One juvenile was caught in a trap set in a tree. Lucero (1983) noted that this species inhabits a variety of habitats including cities and urban areas. It is found at altitudes up to 2500 m (Lucero, 1983). The species is seldom found in arid or semiarid areas, preferring mesic agricultural zones, forests, and other moist habitats. The opossum from Tafí del Valle was seen crossing the road (Highway 307) north of Tafí del Valle at night (J. K. Braun, personal observation). Although we did not observe any individuals, locals at Dique Escaba indicated that *D. albiventris* was common in the area (J. K. Braun, personal observation).

Remarks.—There is some question regarding the specimens in the Natural History Museum, London, collected by Shipton from Concepción, Aconquija. The location on the skin tag is listed as Concepción, but the locations on the skull tags have been changed to Aconquija. Cajal (1976) reported on the population ecology of this species in Tucumán Province.

Table 1.—Checklist of the mammals of Tucumán Province. The occurrence of each species is indicated as being: (*) collected, seen, or museum specimens examined by us; (l) reported in the literature; (p) of probable occurrence due to the presence of the species in adjacent provinces in similar habitats. In addition, we note whether, in the province of Tucumán, the species is common (c), uncommon (u), rare (r), in danger of extirpation (e), or probably extirpated from the province (x).

Taxon	Occurrence	Status
Order Didelphimorphia		
Family Didelphidae		
Subfamily Didelphinae		
<i>Didelphis albiventris</i>	*, l	c
<i>Lutreolina crassicaudata</i>	*	u
<i>Monodelphis dimidiata</i>	*	r
<i>Thylamys elegans</i>	*, l	c
<i>Thylamys pallidior</i>	*, l	u
Order Xenarthra		
Family Dasypodidae		
Subfamily Dasypodinae		
<i>Cabassous chacoensis</i>		r
<i>Chaetophractus vellerosus</i>	*, l	c
<i>Euphractus sexcinctus</i>	*	u
<i>Priodontes maximus</i>	p	r?, x?
<i>Tolypeutes matacus</i>	*, l	e
Family Myrmecophagidae		
<i>Myrmecophaga tridactyla</i>		x?
<i>Tamandua tetradactyla</i>	*	u
Order Chiroptera		
Family Phyllostomidae		
Subfamily Phyllostominae		
<i>Chrotopterus auritus</i>	*	r
Subfamily Stenodermatinae		
<i>Artibeus planirostris</i>	*	c
<i>Sturnira erythromos</i>	*	u
<i>Sturnira lilium</i>	*	c
<i>Sturnira oporaphilum</i>	*	r
Subfamily Desmodontinae		
<i>Desmodus rotundus</i>	*	c
Family Vespertilionidae		
Subfamily Vespertilioninae		
<i>Eptesicus diminutus</i>	*	u
<i>Eptesicus furinalis</i>	*	u
<i>Histiotus macrotus</i>	*	u
<i>Lasiurus blossevillii</i>	*, l	c
<i>Lasiurus cinereus</i>	*	c
<i>Lasiurus ega</i>	*, l	c
<i>Myotis albescens</i>	*	c
<i>Myotis keaysi</i>	*	c
<i>Myotis levis</i>	*	c
<i>Myotis nigricans</i>	*, l	c
Family Molossidae		
<i>Eumops bonariensis</i>	*	c
<i>Eumops dabbenei</i>	*	u
<i>Eumops glaucinus</i>	*	c
<i>Eumops patagonicus</i>	*	c
<i>Eumops perotis</i>	*, l	c
<i>Molossops temminckii</i>	*, l	c
<i>Molossus molossus</i>	*	c
<i>Nyctinomops macrotis</i>	*	c
<i>Promops nasutus</i>	*	c
<i>Tadarida brasiliensis</i>	*, l	c

Table 1.—Continued.

Taxon	Occurrence	Status
Order Primates		
Family Cebidae		
Subfamily Cebinae		
<i>Cebus apella</i>		x?
Order Carnivora		
Family Canidae		
<i>Cerdocyon thous</i>	*	c
<i>Pseudalopex culpaeus</i>	*	u
<i>Pseudalopex griseus</i>	*	u
<i>Pseudalopex gymnocercus</i>	*	c
Family Felidae		
Subfamily Felinae		
<i>Herpailurus yaguarondi</i>	*	u
<i>Leopardus pardalis</i>	*, l	u
<i>Lynchailurus pajeros</i>	*	r
<i>Oncifelis geoffroyi</i>	*, l	c
<i>Oreailurus jacobita</i>	*, l	r
<i>Puma concolor</i>	*, l	c
Subfamily Pantherinae		
<i>Panthera onca</i>		x
Family Mustelidae		
Subfamily Lutrinae		
<i>Lontra longicaudis</i>	*	e
Subfamily Mephitinae		
<i>Conepatus chinga</i>	*	c
Subfamily Mustelinae		
<i>Eira barbara</i>	*	u
<i>Galictis cuja</i>	*	c
<i>Lyncodon patagonicus</i>	*, l	u
Family Procyonidae		
Subfamily Procyoninae		
<i>Nasua nasua</i>	*	u
<i>Procyon cancrivorus</i>	*	u
Order Perissodactyla		
Family Tapiridae		
<i>Tapirus terrestris</i>	*, l	p?, x?
Order Artiodactyla		
Family Tayassuidae		
<i>Catagonus wagneri</i>	*	r
<i>Pecari tajacu</i>	*	c
<i>Tayassu pecari</i>	l, p	?
Family Camelidae		
<i>Lama guanicoe</i>	*, l	u
<i>Vicugna vicugna</i>	l	x
Family Cervidae		
Subfamily Odocoileinae		
<i>Hippocamelus antisensis</i>	*	u
<i>Mazama americana</i>	*	u
<i>Mazama gouazoubira</i>	*	c
<i>Ozotoceros bezoarticus</i>	l	x
Order Lagomorpha		
Family Leporidae		
<i>Sylvilagus brasiliensis</i>	*	u

Table 2.—Reproductive data for the Didelphidae. Symbols: A = adult; SA = subadult; J = juvenile; TSL = large scrotal testes; lac = lactating; NRA = not reproductively active; length and width of testes, or qualitative evaluation, are given in parentheses; CRL = crown-rump length of embryos or young. May, August, October, and November have no data.

Taxon	Sex	January	February	March	April	June	July	September	December
<i>Didelphis albiventris</i>	M	1 J/SA 1 J/SA (small) 1 J/SA (7 × 4)	1 A				1 SA (12 × 15) 1 SA (14 × 10)		
	F	3 J/SA 1 A with 7 pouched young, CRL = 59 mm		1 A		1 A	1 A		
	M	1 A TSL (12 × 7) 1 A TSL (9 × 7) 2 J	2 A	3 A		3 A 1 A (6 × 4)	1 A	3 A	
	F	2 A lac 2 A NRA 1 A 1 J	1 A	3 A NRA 1 A	1 A		2 A	3 A	2 A lac 1 J

Lutreolina crassicaudata (Desmarest)

Didelphis crassicaudata Desmarest, Nouveau dictionnaire d'histoire naturelle, appliquée aux arts, à l'agriculture, à l'économie rurale et domestique, à la médecine, etc. par une société de naturalistes et d'agriculteurs, nouvelle édition, Ch. Deterville, Paris, 24:19, 1804.

Specimens Examined.—(7) Aconquija, 1 (BMNH); Sierras de Medina, Aguas Chiquitas, El Cadillal, 1 (CM); Piedras Coloradas, 3 (MMP); Quebrada de Lules, 11 km SW San Pablo, 1 (CM); Raco, Sierra San Javier, 3 (2 BMNH, 1 CML); 25 km NW San Miguel de Tucumán, 1 (CM); San Pablo, 11 km al NO, 1 (CML).

Additional Record.—El Indio, Ruta 307 (R. M. Bárcquez, personal observation).

Measurements.—External measurements (two males, one female): total length, 446.0, 522.0, 370.0; tail, 226.0, 262.0, 180.0; hindfoot, 38.4, 40.5, 28.0; ear (two males), 24.0, 23.5; weight (one male), 217.0. Cranial measurements (two males, one sex unknown, unless noted otherwise): greatest length of skull (one male, one sex unknown), 64.2, 58.0; condylobasal length (one male, one sex unknown), 63.2, 57.1; least interorbital length, 8.1, 8.4, 7.5; zygomatic breadth, 29.2, 32.2, 29.3; breadth of braincase (one male, one sex unknown), 19.2, 17.3; length of maxillary toothrow, 24.1, 29.7, 23.9; palatal length, 32.8, 31.6, 33.1; length of mandibular toothrow, 19.2, 26.7, 22.4; greatest length of mandible, 45.4, 48.4, 44.4.

Habitat.—In northwestern Argentina, this species is found primarily in humid forested areas in lower montane zones (Olrog, 1976), but it may frequent open areas near water, as in the pampas (Cabrera and Yepes, 1960). *Lutreolina* may be found in habitats ranging from 600–2000 m in elevation. This species is found near water courses (Lucero, 1983).

Remarks.—The populations in northwestern Argentina may possibly represent a new subspecies (Olrog, 1976; Lucero, 1983).

Monodelphis dimidiata (Wagner)

Didelphis dimidiata Wagner, Abhandlungen der Mathem.-physikalischen Classe der Königlich Bayerischen Akademie der Wissenschaften (München), 5(1):151, footnote, 1847.

Specimen Examined.—(1) Concepción, 1 (BMNH).

Measurements.—Cranial measurements (one sex unknown): greatest length of skull, 36.1; condylobasal length, 35.6; least interorbital length, 4.9; zygomatic breadth, 20.1; breadth of braincase, 12.8; length of maxillary toothrow, 12.9; palatal length, 18.9; length of mandibular toothrow, 13.5; greatest length of mandible, 26.8.

Habitat.—It is difficult to define the distribution of this species without causing some taxonomic confusion. Wilson and Reeder (1993) reported the distribution as including Uruguay, southeastern Brazil, and northeastern Argentina, but failed to cite records from north-central and northwestern Argentina. In addition to the province of Tucumán, *M. dimidiata* has been reported from Buenos Aires (Reig, 1964; Dalby, 1975; Pine et al., 1985), Cordoba (Crespo, 1964), and Salta (Ojeda and Mares, 1989). It appears to be a widely distributed, but exceedingly rare, species in northern Argentina.

Remarks.—This specimen housed in the BMNH was collected by Shipton. It is represented by a skull; the skin does not exist. This genus is in need of revision. Although little is known about the biology of this species in the western portion of its range, the ecology, development, and morphometrics have been studied in Buenos Aires Province (Dalby, 1975; Pine et al., 1985). Redford and Eisenberg (1992) did not show this species in Tucumán Province.

Thylamys elegans (Waterhouse)

Didelphis elegans Waterhouse, Mammalia, in Darwin, C., The Zoology of H. M. S. *Beagle*, Under the Command of Captain Fitzroy, During the Years 1832–1836, with Notes by Charles Darwin, Part II. Smith, Elder and Co., London, 95, 1839.

Specimens Examined.—(95) Aconquija, 3000 m, 9 (MACN); Burreyacú, 1300 m, 4 (BMNH); 45 km S Cafayate along Hwy 40, 1 (CM); Cerro del Campo, 1 (BMNH); Cerro de Tafí Viejo, 2400 m, 1 (BMNH); Cerro San Javier, 6 (1 CML, 5 MACN); Concepción, 21 (5 BMNH, 1 CML, 15 MACN); El Cadillal, 25 km N San Miguel de Tucumán, 1 (CM); Biological Reserve at Horco Molle, near residencia, 2,400 ft., 17 (6 CML, 5 IADIZA, 6 OMNH); 4 km W junction Hwy 338 and road to Horco Molle along 338, on road to San Javier, 2,750 ft., 1 (OMNH); Horco Molle, 25 km NW San Miguel de Tucumán, 2 (CM); La Higuera, 4 (CML); 5 km N Las Higuierillas on Hwy 308, 2,900 ft., 2 (1 IADIZA, 1 OMNH); 3 km W Lules, 1 (CM); Ñorco, Vipos, 2500 m, 5 (BMNH); Piedra Tendida, 12 km WNW Burreyacú along Río Cajón, 2,500 ft., 2 (OMNH); San Pablo, 2 (BMNH); at km marker 42 on highway 364, south of San Pedro de Colalao, 4,700 ft., 2 (OMNH); 11 km S San Pedro de Colalao, 1 (CM); 17 km NW San Miguel de Tucumán, 3 (CM); Tucumán, 450 m, 1 (BMNH); Villa Nougés, 1200 m, 2 (BMNH); Vipos, 2 (1 CML, 1 MACN).

Additional Records.—Cerro de Raco, Trancas (Tate, 1933); El Cadillal (R. A. Ojeda, personal observation); Sierra de Tucumán (Tate, 1933).

Measurements.—External measurements (33 males, 26 females, unless noted otherwise): total length, 234.6 (148.0–284.0), 233.4 (184.0–281.0); tail, 131.7 (75.0–152.0), 128.7 (98.0–152.0); hindfoot, 16.3 (13.0–20.0), 15.6 (13.0–19.0); ear (32 males, 26 females), 24.0 (16.0–29.8), 24.2 (19.0–30.1); weight (17 males, 18 females), 27.8 (9.0–55.0), 20.3 (12.5–44.0). Cranial measurements (17 males, 11 females, unless noted otherwise): greatest length of skull, 28.9 (22.2–33.3), 29.6 (24.6–32.3); condylobasal length, 28.2 (21.8–32.9), 29.0 (23.7–32.3); least interorbital length, 4.8 (4.3–5.5), 4.6 (4.2–5.1); zygomatic breadth (16 males, ten females), 15.3 (11.8–18.1), 16.1 (12.9–17.8); breadth of braincase, 11.0 (9.7–11.9), 11.0 (9.7–11.5); length of maxillary toothrow (14 males, ten females), 11.1 (7.7–12.2), 11.3 (9.3–11.9); palatal length, 15.0 (11.0–17.2), 15.2 (12.4–16.5); length of mandibular toothrow (14 males, ten females), 10.6 (8.6–12.2), 10.5 (7.9–11.4); greatest length of mandible (14 males, ten females), 19.8 (14.7–23.2), 20.9 (16.3–23.8).

Reproduction.—See Table 2.

Molt.—Molting adults were found in January, March, and September; a molting juvenile was found in January.

Habitat.—Cabrera (1957) and Olrog and Lucero (1981) restricted the distribution of this species to the northwestern Argentine provinces of Salta, Jujuy, Tucumán, and northern Catamarca. Individuals of this species prefer transitional and humid forest below 2000 m, and mesic agricultural areas. Most specimens were collected using Sherman live traps; several were collected in Museum Special traps. At least one individual was collected in a trap set in a tree. At Piedra Tendida, one individual was captured in a Sherman trap set in a dense mat of shrubs, vines, and fallen trees 1–2 m above the ground (M. L. Campbell, personal observation). A second individual was captured in a trap on the ground (M. L. Campbell, personal observation). Lucero (1983) noted that *T. e. cinderella* is found in the humid forest up to 1000 m and *T. e. venusta* is found in the semiarid Chacoan region of the eastern part of the province.

Remarks.—Budin (Thomas, 1926:608–609) noted that “They live in the straw-covered fields, and these specimens I captured by setting the traps in the entrance to the holes of cuises [*Microcavia* and *Galea*]. In other places where I have collected Achocayas I have generally found them under stones and tree-trunks

and in holes made on the hill-sides. Very damaging to specimens caught, attacking the head of the latter and extracting the brain.”

Thylamys pallidior (Thomas)

Marmosa elegans pallidior Thomas, Annals and Magazine of Natural History, series. 7, 10:161, 1902.

Specimens Examined.—(4) El Bracho, 1 (CML); El Cadillal, 1 (CML); Las Mesadas, 1 (CML); San Pedro de Colalao, 1 (BMNH).

Additional Records.—Tafí del Valle (Tate, 1933); Tapia (Tate, 1933); Vipos (Thomas, 1926; Tate, 1933).

Measurements.—External measurements (two males, one sex unknown): total length, 200.0, 150.0, 186.0; tail, 101.0, 75.0, 92.0; hindfoot, 12.0, 10.0, 11.0; ear, 24.0, 15.0, 23.0. Cranial measurements (one male, one sex unknown, unless noted otherwise): greatest length of skull (one male), 22.8; condylobasal length (one sex unknown), 24.2; least interorbital length, 3.7, 3.8; zygomatic breadth, 12.8, 14.7; breadth of braincase, 10.0, 10.6; length of maxillary toothrow, 8.2, 9.3; palatal length, 11.6, 13.2; length of mandibular toothrow, 9.3, 9.9; greatest length of mandible, 15.8, 18.3.

Habitat.—*Thylamys pallidior* is distributed in western Argentina from Neuquén and Río Negro northward. This species is found in the arid and semiarid regions of Tucumán—the Chaco, the monte desert (Mares, 1973, 1976), and occasionally in transitional forest (Cajal, 1981; Ojeda and Mares, 1989). *Thylamys p. bruchi* inhabits the mountains and hills of the lowlands of the province; *T. p. pallidior* inhabits the arid shrubby steppes in the mountainous portion of the province (Lucero, 1983).

Remarks.—Budín (Thomas, 1926:609) noted that a single individual was “Trapped on a stony hill on the banks of the Río Vipos.” Tate (1933) discussed the difference between *pusilla* and *pallidior*. He (Tate, 1933:223) stated that “*Pusilla* bears a considerable likeness to *pallidior*, but can be distinguished by its longer tail, much greater size in adulthood, larger feet and ears,—besides the cranial characters pertaining to the section in which the animals belong, as interorbital breadth, etc.” Specimens of *T. pallidior* lack the pronounced postorbital constriction that is present in *T. pusilla*. *Thylamys pallidior* was recently recognized again as a species distinct from *T. pusilla*; the distribution of *T. pusilla* has been restricted to northeastern Argentina, central and southern Brazil, Paraguay, and southeastern Bolivia (Wilson and Reeder, 1993).

Order Xenarthra
Family Dasypodidae
Subfamily Dasypodinae
Cabassous chacoensis Wetzel

Cabassous chacoensis Wetzel, Annals of Carnegie Museum, 49:335, 1980.

Specimens Examined.—(0) None.

Additional Record.—Departamento Burruyacú (C. C. Olrog, personal observation).

Habitat.—Lucero (1983) noted that this armadillo inhabits the subtropical semihumid transitional forest, savannas, and mountains in the northeastern region of the province. In general, the distribution of this species coincides with the distribution of the Gran Chaco of northwestern Argentina, western Paraguay, and southeastern Bolivia and perhaps part of western Brazil (Wetzel, 1980). This species may occur in the dry Chaco found in eastern Tucumán Province.

Remarks.—Although there are no specimen records of this species for the province, specimens have been reported from Santiago del Estero and Formosa (Wetzel, 1980). The individual listed above was observed in early April. Specimens belonging to this species may be listed as *C. lorincatus* (Yepes, 1935; Cabrera, 1957), which was synonymized with *C. chacoensis* by Wetzel (1980). There is little information on this species. It seems generally to be rare and known specimen records are scarce. Redford and Eisenberg (1992) did not extend the distribution of this species to Tucumán Province.

Chaetophractus vellerosus (Gray)

Dasypus vellerosus Gray, Proceedings of the Zoological Society of London, 1865:376, 1865.

Specimens Examined.—(12) Agua Rosada, 1 (CML); Concepción, 2 (1 MACN, 1 BMNH); Estancia El Cavao, 1 (CML); La Cocha, 380 m, 1 (BMNH); San Miguel de Tucumán, 4 (2 BMNH, 2 CML); San Pedro de Colalao, 1 (CML); Tapia de Tucumán, 600 m, 1 (BMNH); Vipos, 1 (MACN).

Additional Records.—12 km W La Quebradita, km 81 along Hwy 307, 9,500 ft. (J. K. Braun, personal observation; M. L. Campbell, personal observation); Tucumán (Thomas, 1902; Yepes, 1929).

Measurements.—External measurements (one male, one female): total length, 335.0, 443.0; tail, 102.0, 110.0; hindfoot, 43.0, 50.0; ear, 31.0, 32.0. Cranial measurements (three males, two females, one sex unknown): greatest length of skull, 65.1 (63.7–66.1), 65.3, 62.5, 62.2; condylobasal length, 59.2 (43.7–64.6), 52.3, 61.0, 49.0; least interorbital length, 16.6 (16.2–17.2), 15.5, 17.1, 16.8; zygomatic breadth, 40.1 (37.7–41.8), 37.0, 38.8, 38.4; breadth of braincase, 26.3 (25.8–27.1), 26.9, 25.8, 26.5; length of maxillary toothrow, 29.6 (25.8–27.1), 29.2, 27.3, 27.8; palatal length, 37.4 (33.8–41.0), 41.0, 34.6, 39.5; length of mandibular toothrow, 30.9 (30.4–31.3), 31.5, 29.3, 30.4; greatest length of mandible, 49.8 (49.2–50.5), 49.5, 48.4, 48.1.

Habitat.—This species is common in the monte desert; it is also found in forests and in the Chaco. Burrows of this species were seen at La Quebradita (J. K. Braun, personal observation; M. L. Campbell, personal observation).

Remarks.—Single individuals have been collected in March and July. The ecology of this species in other provinces (Jujuy, La Rioja, and San Luis) has been described (Crespo, 1944; Greeger, 1975, 1980a, 1980b, 1985). Wetzel (1982, 1985) suggested that this species is in need of systematic study.

Euphractus sexcinctus (Linnaeus)

Dasypus sexcinctus Linnaeus, Systema Naturae per regna tria naturae, secundum classis, ordines, genera, species cum characteribus, differentiis, synonymis, locis. Tenth edition. Laurentii Salvii, Stockholm, 1:51, 1758.

Specimens Examined.—(5) Capital, San Miguel de Tucumán, 1 (CML); Monte Bello, Trancas, 1 (CML); San Pedro de Colalao, 2 (CML); Tapia, 1 (BMNH).

Additional Record.—Tapia (Thomas, 1907).

Measurements.—Cranial measurements (three males, unless noted otherwise): greatest length of skull, 110.8 (104.1–120.5); condylobasal length, 103.1 (83.0–121.3); least interorbital length, 26.8 (25.5–28.5); zygomatic breadth (two males), 72.3, 58.0; breadth of braincase, 42.0 (40.2–45.5); length of maxillary toothrow, 50.0 (48.1–53.7); palatal length, 65.0 (59.5–69.6); length of mandibular toothrow (two males), 58.8, 52.6; greatest length of mandible (two males), 92.0, 80.1.

Habitat.—This species is found in transitional forests, savannas, Chacoan thorn scrub, and mountains up to 2000 m (Olrog and Lucero, 1981; Lucero, 1983).

Olrog and Lucero (1981) restricted the distribution of this species to the Chaco region.

Remarks.—Single individuals have been captured in March, April, and September. Redford and Wetzel (1985) described the biology of this species.

Priodontes maximus Kerr 1792

Dasypus maximus Kerr, in Linnaeus, The animal kingdom, or zoological system, of the celebrated Sir Charles Linnaeus. J. Murray and R. Faulder, London, p. 112.

Specimens Examined.—(0) None.

Habitat.—In this part of Argentina, the giant armadillo is found in mature Chacoan thorn scrub.

Remarks.—Mares et al. (1989) reported this species across eastern Salta Province, all the way to the Tucumán border. Olrog and Lucero (1981) show the range of the species in Argentina as just abutting the limits of northeastern Tucumán Province. We consider this species to be probable in the Chacoan zone of extreme northeastern Tucumán. *Priodontes maximus* is considered vulnerable by the International Union for the Conservation of Nature (1994).

Tolypeutes matacus (Desmarest)

Loricatus matacus Desmarest, Nouveau dictionnaire d'histoire naturelle, appliquée aux arts, à l'agriculture, à l'économie rurale et domestique, à la médecine, etc. par une société de naturalistes et d'agriculteurs, Nouvelle édition., Ch. Deterville, Paris, 24:28, 1804.

Specimens Examined.—(4) Agua Rosada, San Pedro de Colalao, 1 (CML); Chicligasta, 1 (CML); Rearte Norte, 1 (CML); San Pedro de Colalao, 1 (CML).

Additional Records.—Tucumán, 450 m (Sanborn, 1930); Tucumán, no specific locality (Desmarest, 1804).

Habitat. This species is found in a variety of habitats, but is most common in savannas, mountains, and shrubby arid regions in the mountains of northwestern Tucumán Province up to 2000 m (Olrog and Lucero, 1981; Lucero, 1983).

Remarks.—According to Cabrera (1957) and Wetzel (1982), this species once inhabited all of northern Argentina southward to Río Negro and Santa Cruz. The distribution was later restricted to no further south than the province of Buenos Aires (Wetzel, 1985). *Tolypeutes* may be absent from Entre Ríos, Corrientes, and Misiones. The type locality was designated as Tucumán by Sanborn (1930). Single individuals have been collected in January, March, and August.

Family Myrmecophagidae

Myrmecophaga tridactyla Linnaeus

Myrmecophaga tridactyla Linnaeus, Systema Naturae per regna tria naturae, secundum classis, ordines, genera, species cum characteribus, differentiis, synonymis, locis. Tenth edition. Laurentii Salvii, Stockholm, 1:35, 1758.

Specimens Examined.—(0) None.

Habitat.—If this species occurs in the province, it would inhabit the Chacoan thorn scrub or possibly the transitional forest.

Remarks.—Cabrera (1957) reported this species from the provinces of Salta, Formosa, Chaco, and Misiones. It is also common and widely distributed in the province of Santiago del Estero. Olrog and Lucero (1981) indicated the distribution as also including Corrientes Province, northern Santa Fe Province, and Tucumán. This species inhabits the Chacoan habitat of Tucumán (C. C. Olrog,

personal communication), although there is no recent information regarding its presence. This species is considered vulnerable in Argentina (International Union for the Conservation of Nature, 1990, 1994). This anteater is considered an Appendix II species in Argentina and is protected (Fuller and Swift, 1984).

Tamandua tetradactyla (Linnaeus)

Myrmecophaga tetradactyla Linnaeus, Systema Naturae per regna tria naturae, secundum classis, ordines, genera, species cum characteribus, differentiis, synonymis, locis. Tenth edition. Laurentii Salvii, Stockholm, 1:35, 1758.

Specimens Examined.—(5) Alderetes, 1 (CML); Chicoligasta, 1 (CML); Cuesta del 25, Ruta 9, entrada al Cadillal, 1 (CML); Garmendia, Departamento Burrucacú, 1 (CML); San Javier, Ciudad Universitaria, 1 (CML).

Additional Records.—El Cadillal (R. M. Bárcquez and R. A. Ojeda, personal observation); Horco Molle (R. M. Bárcquez, personal observation).

Habitat.—Lucero (1983) noted that this species inhabits the Chaco, grasslands, and transitional forests of the province. It is distributed throughout northern Argentina, from the western forests, across the Chaco, to northern Córdoba, Santa Fe, and Entre Ríos.

Remarks.—This is considered an Appendix II species in Argentina and is protected (Fuller and Swift, 1984). Single individuals have been collected in June, July, and December. This species is relatively common in the province especially in transitional forest and in the lower-elevation montane forests. It is less common in the Chacoan thorn scrub. Redford and Eisenberg (1992) did not extend the distribution of this species to Tucumán Province.

Order Chiroptera
Family Phyllostomidae
Subfamily Phyllostominae
Chrotopterus auritus (Peters)

Vampyrus auritus Peters, Monatsberichte der Königlich Preussischen Akademie der Wissenschaften zu Berlin, 1865:5, 1856.

Specimen Examined.—(1) Dique San Ignacio, 1 (CML).

Habitat.—In Argentina, this species is found in dense forests in Jujuy, Salta, Tucumán, Chaco, Formosa, and Misiones (Bárcquez, 1987).

Remarks.—The subspecies found in Argentina is *C. a. australis* (Bárcquez, 1987). Bárcquez (1987) summarized the biology of this species. Although we have netted extensively for this bat in Tucumán, this remains the only known record of occurrence for the province.

Subfamily Stenodermatinae
Artibeus planirostris (Spix)

Phyllostoma planirostre Spix, Simiarum et Vespertilionum Brasiliensium species novae. Monachii, p. 66, 1823.

Specimens Examined.—(19) Agua Colorada, 8 (MACN); Aguas Chiquitas, El Cadillal, 800 m, 1 (CM); Reserva Provincial "Aguas Chiquitas" El Cadillal, 4 (CM); Las Juntas, 22 km W Choromoro on Hwy 312, 3,500 ft., 2 (1 CML, 1 OMNH); Playa Larga, 1 (CML); Quebrada del Toro, 1 (CML); Río Loro, 1 (CML); Taco Yana, 1 (CML).

Measurements.—External measurements (two males, one female): total length, 90.0, 95.0,—; hindfoot, 16.4, 7.0,—; ear, 21.0, 22.0,—; forearm,—, 69.0,—;

weight, 55.8, 60.0, 45.0. Cranial measurements (two males): greatest length of skull, 30.0, 32.1; condylobasal length, 27.3, 29.0; least interorbital length, 7.5, 7.9; zygomatic breadth, 19.9, 19.7; breadth of braincase, 14.0, 15.0; length of maxillary toothrow, 10.7, 11.9, palatal length, 14.7, 15.6; length of mandibular toothrow, 10.0, 11.6; greatest length of mandible, 21.4, 20.4.

Reproduction.—See Table 3.

Habitat.—In Argentina, this species is restricted to the provinces of the north-west, Jujuy, Salta, Tucumán, and possibly Catamarca. Specimens have been collected in humid and transitional forest, including montane transitional forest (Bárquez and Ojeda, 1992; Mares et al., 1995). Individuals captured at Las Juntas were collected in a net placed over the Río Choromoro (Mares et al., 1995). The Río Loro locality is transitional forest surrounded by Chacoan vegetation (Bárquez and Ojeda, 1992).

Remarks.—In some publications, for example, Olrog and Lucero (1981), this species is listed as *A. jamaicensis*. At Las Juntas, this species was captured with individuals of *Sturnira erythromos*, *Histiopus macrotus*, *Lasiurus blossevillii*, and *Tadarida brasiliensis*. Specimens have been collected in January ($n = 1$), July ($n = 2$), and October ($n = 4$). *Artibeus planirostris* is either uncommon in the province or common but not abundant (Bárquez, 1988). Bárquez (1987) reviewed the biology of this species in Argentina.

Sturnira erythromos (Tschudi)

Phyllostoma erythromos Tschudi, Untersuchungen über die Fauna Peruana. Therologie. Scheitlin und Zollikofer, St. Gallen, Switzerland, p. 64, 1844.

Specimens Examined.—(52) Reserva Provincial El Cadillal “Aguas Chiquitas,” 1 (CM); El Naranjal, 1 (TTU); Horco Molle, 15 km W San Miguel de Tucumán, 28 (8 CM, 20 CML); Biological Reserve at Horco Molle, near residencia, 2,400 ft., 1 (OMNH); Las Juntas, 22 km W Choromoro, 3,500 ft., 2 (1 CML, 1 OMNH); Piedra Tendida, 12 km WNW Burruyacú, along Río Cajón, 2,500 ft., 3 (1 CML, 1 IADIZA, 1 OMNH); Playa Larga, 1 (CML); Quebrada de Lules, 11 km NW San Pablo, 3 (CM); Río de los Sosa, Ruta 307, km 19.7, camino a Tafí del Valle, 750 m, 1 (OMNH); Río de los Sosa, Ruta 307, km 23.9, camino a Tafí del Valle, 850 m, 5 (OMNH); Río de los Sosa, Ruta 307, km 24.9, camino a Tafí del Valle, 850 m, 3 (OMNH); at km marker 42, on highway 364, south of San Pedro de Colalao, 4,700 ft., 1 (OMNH); entrando por Ticucho, cola del Dique El Cadillal, 1 (OMNH); Ticucho, 1 (CML).

Measurements.—External measurements (17 males, 12 females, unless noted otherwise): total length, 56.5 (50.0–63.0), 54.1 (49.0–60.0); hindfoot, 11.2 (7.0–14.0), 12.1 (9.0–14.0); ear, 16.7 (12.0–18.7), 16.6 (14.0–18.0); forearm, 41.4 (38.8–43.0), 41.0 (39.5–42.4); weight (16 males, 12 females), 16.0 (12.0–23.0), 16.4 (12.0–21.0). Cranial measurements (16 males, 11 females, unless noted otherwise): greatest length of skull, 20.9 (19.6–21.8), 20.4 (19.8–21.4); condylobasal length, 18.9 (18.0–19.8), 18.6 (18.1–19.8); least interorbital length, 6.0 (5.6–6.3), 5.9 (5.6–6.1); zygomatic breadth (15 males, six females), 12.7 (11.2–13.6), 12.5 (11.9–13.0); breadth of braincase, 10.3 (9.8–11.0), 10.1 (9.8–10.5); length of maxillary toothrow (16 males, ten females), 5.9 (5.1–6.3), 5.7 (5.3–6.1); palatal length (16 males, nine females), 8.2 (5.2–9.4), 8.3 (8.0–8.5); length of mandibular toothrow (16 males, ten females), 5.3 (4.9–6.1), 5.4 (5.0–5.6); greatest length of mandible (15 males, nine females), 13.0 (11.8–19.9), 12.5 (11.9–13.2).

Reproduction.—See Table 3.

Molt.—Individuals collected in July showed no sign of molting.

Habitat.—In Argentina, this species is known only from the provinces of Jujuy, Salta, and Tucumán (Bárquez, 1987). In Tucumán, all specimens were collected

Table 3.—Reproductive data for the Chiroptera. Symbols: A = adult; SA = subadult; J = juvenile; TSL = large scrotal testes; lac = lactating; NRA = not reproductively active; length and width of testes, or qualitative evaluation, are given in parentheses; CRL = crown-rump length of embryos or young. August has no data.

Taxon	Sex	January	February	March	April	May	June	July	September	October	November	December
<i>Aritebeus planirostris</i>	M	1 A						1 A (6 × 4) 1 (VO)				
<i>Sturnira erythromos</i>	M	1 A (5 × 4)			1 (TA)			1 (TA) (5 × 3)	4 NS (4.1–5.6) 1 (TA) (3.1 × 1.4)	3 (TS)		
	F	5 A 1 (VC)				1 A		1 A 2 A	5 A	2 (Pg, n = 1) 1 (VO)	1 A	
<i>Sturnira lilium</i>	M	1 (TS)		1 A					1 (TA) 4.1 1 (TA) 4.4 1 (TA) 2.1	1 (TS) 2 A		
	F			2 A		1 A			4 A 1 (Pg, n = 1) CRL = 17.1	5 A		
<i>Sturnira oporophylum</i>	M	1 (TS)										
<i>Desmodus rotundus</i>	F								1 (TS) 1 A	1 A		
<i>Eptesicus diminutus</i>	M	1 J										
	F	1 lac 1 A										1 A
<i>Eptesicus furiinalis</i>	M	1 A										
<i>Histiotus macrotus</i>	F		1 A 4 A	1 A 1 A				1 A				1 A 2 A
<i>Lasiurus blossevillii</i>	M		1 A									
<i>Lasiurus ega</i>	F											1 A
<i>Lasiurus</i>	M						1 (TS) (6.0)					
<i>Myotis albescens</i>	M	1 A			1 (TS)							
	F					2 A 1 (VC)						

Table 3.—Continued.

Taxon	Sex	January	February	March	April	May	June	July	September	October	November	December
<i>Myotis keaysi</i>	M						1 A					
	F											
<i>Myotis levis</i>	M	4 A										2 A
	F	12 A										
		1 J										
<i>Myotis nigricans</i>	M			1 (TSL)				1 (TA) (1 × 1)				
	F		1 A									
<i>Eumops bonariensis</i>	M			1 A						3 A		2 A
	F	3 A		1 A								3 A
												2 lac
<i>Eumops dabbeni</i>	M											1 J
	F											
<i>Eumops patagonicus</i>	M			1 A								
	F			1 A	1 (TS)					1 A		
<i>Eumops perotis</i>	M			1 (TA small) (4.1)							J?	
	F										J?	
<i>Molossops tenminckii</i>	M									1 (TS)		
	F											
<i>Molossus molossus</i>	M											
	F											
<i>Nyctinomops macrotis</i>	M											
	F											
<i>Promops nasutus</i>	M											
	F											
<i>Tadarida brasiliensis</i>	M	(4 × 2)		1 (TA)								2 A
	F	(3 × 2)										
		1 A										
	F			d1 (VC)				5 A				1 A

in transitional forest, primarily in nets near sources of water. Bárquez and Ojeda (1992) noted that all Chacoan localities in the province are near Yungas forest.

Remarks.—Because individuals of this species have been confused with *S. lilium* and *S. oporaphilum*, little is known (with confidence) about the biology of this species (but see Bárquez, 1987). Specimens have been captured in January ($n = 7$), May ($n = 1$), June ($n = 1$), July ($n = 4$), September ($n = 10$), October ($n = 6$), and November ($n = 1$). At Horco Molle, this was the only species captured; individuals of *Tadarida brasiliensis* were captured several days earlier (Mares et al., 1995). Other species captured at Las Juntas include *Artibeus planirostris*, *Histiotus macrotus*, *Lasiurus blossevillii*, and *Tadarida brasiliensis*. *Myotis keaysi* and *Myotis nigricans* also were captured at Piedra Tendida, and at San Pedro de Colalao *Myotis levis* also was captured.

Sturnira lilium (E. Geoffroy)

Phyllostoma lilium E. Geoffroy, Annales Museum d'Histoire Naturelle, Paris, 15:181, 1810.

Specimens Examined.—(57) Agua Colorada, 11 (9 MACN, 2 TTU); Casa de Piedra, Río Los Sosa, 4 (CML); Dique San Ignacio, 1 (CML); El Cadillal, 1 (OMNH); Horco Molle, 15 km W San Miguel de Tucumán, 17 (10 CM, 7 OMNH); Ingenio San Pablo, 1 (MACN); La Cocha, Dique San Ignacio, 1 (OMNH); Los Sarmientos, 1 (CML); Playa Larga, 8 (CML); Río Los Sosa, Ruta 307, km 19.7, 700 m, 1 (OMNH); Ruta 307, km 19.7, camino a Tafí del Valle, 750 m, 5 (OMNH); Ruta 307, km 23.9, 850 m, 1 (OMNH); Ruta 307, km 24.9, camino a Tafí del Valle, 850 m, 2 (OMNH); San Miguel de Tucumán, 2 (BMNH); San Pedro de Colalao, 1 (TTU).

Measurements.—External measurements (eight males, 13 females, unless noted otherwise): total length, 60.5 (57.0–64.5), 61.1 (51.0–70.0); hindfoot, 12.3 (9.2–14.1), 12.2 (9.3–14.8); ear, 17.6 (16.0–19.5), 17.2 (13.0–19.5); forearm (nine males, 13 females), 44.1 (41.7–46.0), 43.1 (38.7–45.9); weight (eight males, 11 females), 22.8 (20.0–28.0), 21.7 (17.0–25.0). Cranial measurements (eight males, 13 females, unless noted otherwise): greatest length of skull (eight males, 12 females), 23.1 (22.1–23.9), 22.2 (20.1–23.3); condylobasal length (eight males, 12 females), 21.1 (20.3–21.8), 20.2 (18.4–21.0); least interorbital length (nine males, 13 females), 6.1 (5.8–6.5), 6.0 (5.5–6.8); zygomatic breadth (seven males, nine females), 13.7 (13.0–14.0), 13.3 (12.1–14.3); breadth of braincase, 10.8 (10.2–11.3), 10.6 (9.5–11.2); length of maxillary tooththrow (nine males, 11 females), 6.8 (6.3–7.4), 6.6 (5.5–7.3); palatal length (seven males, 13 females), 9.7 (9.4–10.0), 9.2 (8.4–10.0); length of mandibular tooththrow, 6.5 (6.2–6.9), 6.3 (5.0–6.7); greatest length of mandible (eight males, 12 females), 14.6 (13.8–15.5), 14.0 (13.0–15.0).

Reproduction.—See Table 3. Bárquez (1988) reported on the reproductive biology of bats sampled between 12–16 October at Ruta 307, km 23.9. For females sampled, 41% were pregnant, 6% were lactating, 41% had open (perforate) vaginas but without palpable fetuses, and 12% had closed vaginas. Males with abdominal testes comprised 58% of the sample; 42% had scrotal testes. During a later survey (28–30 October), all males (100%) had scrotal testes, 50% of the females had small palpable fetuses, and 50% were near parturition. In mid-January, young were flying and there was a decrease in reproductive activity. Samples at this time showed 4% of males with scrotal testes, 43% were adults with abdominal testes, and 53% were juveniles with abdominal testes. Adult females were lactating, but 77% of all females were juveniles. Individuals captured at a nearby location in May were not reproductively active and population densities were lower.

Habitat.—In Argentina, *S. lilium* is distributed in the northwestern provinces

of Jujuy, Salta, Tucumán, and Catamarca. It is also found in the northeastern provinces of Chaco, Formosa, Misiones, Entre Ríos, and Santa Fe (Bárquez, 1987). Lucero (1983) noted that *S. lilium* is locally common in humid and transitional forests. It apparently prefers the low vegetation forest stratum (Bárquez, 1987). Few specimens document the presence of this species in the Chaco of Tucumán. Two localities, Agua Colorada and El Cadillal, are gallery forests. Bárquez and Ojeda (1992) suggested that these records reflect a shift from forests to the Chaco during periods of limited availability of fruit.

Remarks.—At Río Los Sosa, Rt. 307, km 23.9, this species was captured with *Artibeus planirostris*, *Histiotus macrotus*, *Lasiurus cinereus*, and *Tadarida brasiliensis*. *Sturnira lilium* commonly eats the fruit of the Solanaceae, although at Horco Molle it has been found eating fruit of the introduced moras (mulberry). This species is not common in urban environments, although Bárquez (1987) reported that pellets from Barn Owls (*Tyto alba*) found in buildings in the city of Tucumán contained skulls of young and subadult *S. lilium*. Owls might prey on *S. lilium* as they fly through the city or else are foraging in nearby forests.

Sturnira oporaphilum (Tschudi)

Phyllostoma oporaphilum Tschudi, Untersuchungen über die Fauna Peruana. Therologie. Scheitlin und Zollikofer, St. Gallen, Switzerland, p. 64, 1844.

Specimen Examined.—(1) Casa de Piedra, Ruta 307, km 23.9, 850 m, 1 (OMNH).

Additional Record.—A specimen identified as this species was recently captured and released at Piedra Tendida (P. Capllonch, personal communication).

Measurements.—External measurements (one male): total length, 58.5; hind-foot, 9.5; ear, 18.5; forearm, 44.2; weight, 21.0. Cranial measurements (one male): greatest length of skull, 22.7; condylobasal length, 20.7; least interorbital length, 6.2; zygomatic breadth, 13.6; breadth of braincase, 10.9; palatal length, 9.0; length of mandibular toothrow, 6.5; greatest length of mandible, 13.5.

Reproduction.—See Table 3.

Habitat.—In Argentina, *S. oporaphilum* is distributed in the transitional forest habitats of Jujuy, Salta, and Tucumán.

Remarks.—Bárquez (1987) reviewed the biology of this species, which is little known in Argentina. In Wilson and Reeder (1993), this species is listed as *S. bogotensis*. In the localities where it has been captured, it is sympatric with *S. lilium* and *S. erythromos*.

Subfamily Desmodontinae

Desmodus rotundus (E. Geoffroy)

Phyllostoma rotundus E. Geoffroy, Annales Museum d'Histoire Naturelle, Paris, 15:181, 1810.

Specimens Examined.—(13) El Cadillal, 1 (CML); Horco Molle, 15 km SW San Miguel de Tucumán, 1 (CM); Monte Bello, 3 (CML); Piedra Buena, 1 (TTU); Playa Larga, 1 (CML); Río Los Sosas, Ruta 307, km 23.9, 1 (OMNH); Vipos, Estancia San Pedro, 3 (CML).

Measurements.—External measurements (three males, two females, unless noted otherwise): total length, 82.9 (80.0–88.0), 85.0, 91.0; hindfoot, 16.7 (16.0–17.0), 16.0, 18.6; ear, 17.9 (17.0–19.6), 18.0, 20.7; forearm (four males, two females), 62.1 (60.0–64.0), 62.0, 65.2; weight (one male, one female), 43.0, 48.0. Cranial measurements (four males, two females, unless noted otherwise): greatest length of skull, 24.7 (24.2–25.4), 24.7, 25.6; condylobasal length, 22.4 (22.2–22.6), 22.5, 22.9; least interorbital length, 5.6 (5.2–6.0), 5.7, 5.4; zygomatic

breadth, 12.3 (11.9–12.7), 12.5, 11.6; breadth of braincase, 12.1 (11.1–12.6), 12.8, 12.8; length of maxillary tooththrow (one female), 3.5; palatal length (three males, one female), 9.0 (8.9–9.2), 8.8; greatest length of mandible (one male, one female), 14.2, 16.1.

Reproduction.—See Table 3.

Habitat.—Vampire bats are widely distributed in Argentina as far south as approximately 32°S latitude. In Tucumán, these bats are found in savannas, grasslands, and open rural areas up to 2000 m (Olrog and Lucero, 1981; Lucero, 1983).

Remarks.—Although groups composed of up to 5000 individuals have been reported in other parts of the range, in Tucumán vampire bats form much smaller aggregations. They commonly are found in wells in the countryside. Bárquez (1987) reviewed the biology of this species in Argentina.

Family Vespertilionidae
Subfamily Vespertilioninae
Eptesicus diminutus Osgood

Eptesicus diminutus Osgood, Field Museum of Natural History, Zoological Series, 10:197, 1915.

Specimens Examined.—(4) Aguas Chiquitas, Sierras de Medina, 800 m, 3 (CM); El Cadillal, Estación de Piscicultura, 1 (CM).

Measurements.—External measurements (one male, two females): total length, 86.0, 89.0, 91.0; tail, 32.0, 35.0, 32.0; hindfoot, 6.2, 6.8, 7.0; ear, 13.3, 13.5, 13.6; forearm, 32.3, 32.7, 34.0; weight, 4.9, 5.7, 6.3. Cranial measurements (one male, two females, unless noted otherwise): greatest length of skull, 13.1, 13.6, 13.3; condylobasal length, 12.4, 12.6, 12.9; least interorbital length, 3.6, 3.8, 3.8; zygomatic breadth, 8.6, 8.9, 8.9; breadth of braincase, 6.5, 6.7, 7.1; length of maxillary tooththrow, 4.7, 5.0, 4.9; palatal length, 4.7, 5.3, 5.2; length of mandibular tooththrow, 4.2, 4.5, 4.6; greatest length of mandible (two females), 9.9, 9.5.

Reproduction.—See Table 3.

Habitat.—*Eptesicus diminutus* is widely distributed in Argentina, although museum records are scarce. In addition to the localities given above for Tucumán, this species is known from one locality each in the provinces of La Pampa, Buenos Aires, Santa Fe, Corrientes, Misiones, Jujuy, and Salta (Bárquez, 1987; Bárquez and Loughheed, 1990).

Remarks.—The taxonomic history of this taxon was discussed by Bárquez (1987). Specimens were captured in December ($n = 1$) and January ($n = 3$). Little is known of the biology of this species.

Eptesicus furinalis (d'Orbigny)

Vespertilio furinalis d'Orbigny, Voyage dans l'Amérique Méridionale (le Brésil, la République orientale de Uruguay, la République Argentine, la Patagonie, la République du Chili, la République de Bolivia, la République du Perou) exécuté pendant des années 1826, 1827, 1828, 1829, 1830, 1831, 1832, et 1833. Pitois-Levrault, et cie, Paris, Strasbourg, 4:13, 1847.

Specimens Examined.—(13) Aguas Chiquitas, Sierras de Medina, 800 m, 4 (CM); Concepción, 3 (BMNH); El Cadillal, 1 (CML); Las Mesadas, 1 (CML); Las Talas, 1 (CML); Las Talas, 4 km al N de Bella Vista, 1 (OMNH); San Miguel de Tucumán, 2 (1 BMNH, 1 CML).

Measurements.—External measurements (one male, four females): total length, 102.0, 104.2 (99.5–111.0); tail, 40.0, 41.6 (37.0–45.0); hindfoot, 7.7, 8.6 (7.1–10.1); ear, 15.0, 15.6 (14.7–17.3); forearm, 38.8, 39.7 (37.6–41.2); weight, 8.5, 10.2 (7.4–13.0). Cranial measurements (one male, four females): greatest length

of skull, 15.0, 15.5 (14.8–16.0); condylobasal length, 14.5, 15.0 (14.3–15.3); least interorbital length, 3.7, 3.8 (3.7–4.0); zygomatic breadth, 10.4, 10.8 (9.8–11.3); breadth of braincase, 7.0, 7.7 (7.2–8.0); length of maxillary toothrow, 5.6, 5.9 (5.7–6.0); palatal length, 6.1, 6.5 (6.0–7.4); length of mandibular toothrow, 5.3, 5.8 (5.5–6.5); greatest length of mandible, 11.3, 11.9 (11.2–12.2).

Habitat.—*Eptesicus furinalis* is distributed from 36°S latitude northward, excluding the provinces of San Luis and San Juan (Bárquez, 1987; Bárquez and Lougheed, 1990).

Remarks.—*Eptesicus f. findleyi* occurs in the montane regions of northwestern Argentina (Williams, 1978). Myers and Wetzel (1983) synonymized this taxon with *E. f. furinalis*, an arrangement that was followed by Bárquez (1987). Little is known about the biology of this species in Argentina. Myers (1977) and Myers and Wetzel (1983) reported on the biology of this species in Paraguay.

Histiotus macrotus (Poepig)

Nycticeius macrotus Poepig, Reise in Chile, Peru und auf dem Amazonenstromen während der Jahre 1827–1832. Friedrich Fleischer, Leipzig, 1:451, 1835.

Specimens Examined.—(29) Anta Mapú, 1 (MACN); El Cadillal, 1 (CML); El Naranjal, 2 (1 MACN, 1 TTU); El Naranjo, 8 (3 MACN, 5 TTU); El Nogalar, km 43, Ruta 307, 1700m, 4 (CML); Horco Molle, 15 km W San Miguel de Tucumán, 1 (CM); Las Juntas, 22 km W Choromoro on Hwy 312, 3,500 ft., 1 (OMNH); Ñorco, 2500 m, 2 (BMNH); San Miguel de Tucumán, 4 (2 BMNH, 1 CM, 1 CML); San Pedro de Colalao, 4 (CML); Tafí, 2000 m, 1 (BMNH).

Measurements.—External measurements (six males, two females, unless noted otherwise): total length (two males, two females), 107.0, 113.0, 110.0, 109.0; tail (four males, two females), 55.0 (50.0–59.0), 46.0, 49.0; hindfoot (five males, two females), 9.2 (7.0–10.0), 9.8, 8.5; ear, 34.1 (27.0–38.0), 37.1, 34.5; forearm, 46.7 (44.0–48.9), 45.2, 47.7; weight (two males, one female), 9.0, 10.5, 11.0. Cranial measurements (four males, two females, unless noted otherwise): greatest length of skull, 17.5 (16.7–18.1), 17.7, 16.5; condylobasal length, 16.3 (15.7–17.0), 17.0, 17.1; least interorbital length (six males, two females), 4.1 (3.8–4.6), 4.0, 4.2; zygomatic breadth, 10.6 (10.1–11.2), 10.1, 10.6; breadth of braincase, 8.4 (8.3–8.4), 7.7, 8.0; length of maxillary toothrow (five males, two females), 6.0 (5.0–6.4), 6.0, 6.0; palatal length (four males, one female), 7.3 (6.8–7.9), 7.2; length of mandibular toothrow, 6.2 (5.6–6.7), 5.5, 6.4; greatest length of mandible, 12.2 (11.8–12.5), 11.8, 12.1.

Reproduction.—Bárquez (1987) reported that specimens captured in May and June were not reproductively active.

Habitat.—*Histiotus macrotus* is found in the forests of the northwestern part of the province and ranges into the arid Monte Phytogeographic Province (Bárquez, 1987). This species is found from Jujuy and Salta south to Río Negro (Bárquez, 1987; Bárquez and Lougheed, 1990). In transitional forest at Las Juntas, a single individual of this species was captured in a net placed over the Río Choromoro (Mares et al., 1995).

Remarks.—At Las Juntas, this species was captured with *Artibeus planirostris*, *Sturnira erythromos*, *Lasiurus blossevillii*, and *Tadarida brasiliensis*. Adults were collected in February ($n = 5$), March ($n = 1$), July ($n = 1$), September ($n = 1$), and November ($n = 1$). At San Pedro de Colalao, individuals were captured inside a dwelling and were flying over the city (Bárquez, 1987). Little is known about the biology of this species in Argentina.

Lasiurus blossevillii (Lesson and Garnot)

Vespertilio blossevillii Lesson and Garnot, Bulletin des Sciences Naturelles et de Géologie, 8:95, 1826.

Specimens Examined.—(23) Acheral, 1 (CML); Agua Rosada, 1 (CML); Concepción, 3 (BMNH); Horco Molle, 1 (TTU); Ingenio Amalia, 1 (CML); Ingenio Santa Lucía, 1 (CML); Instituto Lillo, 1 (CML); Las Juntas, 22 km W Choromoro on Hwy 312, 3,500 ft., 1 (OMNH); Los Vázquez, 445 m, 3 (BMNH); San Miguel de Tucumán, 6 (3 BMNH, 3 CML); San Pedro de Colalao, 2 (CML); Timbó Nuevo, 1 (CML); Tucumán, 1500 m (no specific locality), 1 (BMNH).

Additional Record.—El Colmenar (Romaña and Abalos, 1950).

Measurements.—External measurements (five males, three females, unless noted otherwise): total length, 97.4 (92.5–104.0), 103.3 (100.0–105.0); tail, 48.5 (45.0–53.0), 49.7 (47.0–52.0); hindfoot, 8.2 (6.5–11.0), 7.8 (7.5–8.0); ear, 9.4 (4.0–13.0), 9.3 (6.0–11.0); forearm (eight males, three females), 38.7 (36.9–40.0), 40.2 (39.0–40.9); weight (one male), 9.0. Cranial measurements (seven males, three females, unless noted otherwise): greatest length of skull, 11.8 (11.2–12.8), 11.8 (11.5–12.1); condylobasal length, 10.5 (9.5–11.3), 11.7 (11.5–11.8); least interorbital length, 4.3 (4.2–4.5), 4.4 (4.3–4.5); zygomatic breadth (five males), 8.5 (8.2–8.9), 9.3 (9.2–9.4); breadth of braincase (six males, three females), 7.0 (6.8–7.2), 7.5 (7.4–7.7); length of maxillary toothrow (five males, three females), 3.8 (3.7–4.0), 4.2 (4.1–4.3); palatal length (six males), 3.7 (2.8–4.2); length of mandibular toothrow (four males, three females), 4.3 (4.2–4.4), 4.8 (4.8–4.9); greatest length of mandible (four males, three females), 8.3 (8.0–8.7), 9.2 (9.1–9.3).

Habitat.—*Lasiurus blossevillii* is distributed throughout northern Argentina. It has not been reported, however, from the provinces of Santa Fe and Santiago del Estero (Bárquez, 1987). It appears to be rare in the Chaco. In Tucumán, this bat has been captured in many different habitats. Open areas appear to be preferred, although individuals have been captured flying over rivers in forests. At Las Juntas, the habitat was montane transitional forest. The single red bat collected at this site was taken in a net placed over the Río Choromoro (Mares et al., 1995).

Remarks.—At Las Juntas, this species was captured with *Artibeus planirostris*, *Sturnira erythromos*, *Histiotus macrotus*, and *Tadarida brasiliensis*. Wilson and Reeder (1993) listed this species under *L. borealis*. We have chosen to follow Baker et al. (1988) and Morales and Bickham (1995) in recognizing the distinctness of red bats in the western and southern portions of their range.

Lasiurus cinereus (Beauvois)

Vespertilio cinereus Beauvois, A scientific catalogue of Peale's Museum. S. H. Smith, Philadelphia, p. 18, 1796.

Specimens Examined.—(7) Las Mesadas, 1 (CML); Los Vázquez, 1 (BMNH); Marcos Paz, 1 (CML); Playa Larga, 1 (OMNH); San Miguel de Tucumán, 2 (1 BMNH, 1 CML); Tafí Viejo, 1 (CML).

Measurements.—External measurements (one male, two sex unknown): forearm, 52.6, 49.0, 52.7. Cranial measurements (one male, one sex unknown, unless noted otherwise): greatest length of skull, 15.7, 15.0; condylobasal length, 15.6, 14.9; least interorbital length, 5.4, 5.0; zygomatic breadth (one sex unknown), 11.6; breadth of braincase, 8.7, 8.7; palatal length (one sex unknown), 4.7.

Habitat.—In Argentina, *L. cinereus* is distributed in most provinces from 40°S latitude northward, although no records are known from the provinces of San Juan, Chaco, Formosa, and Misiones (Bárquez, 1987). In Tucumán, *L. cinereus* roosts in trees in gardens and along the streets.

Remarks.—*Lasiurus cinereus* is solitary. There is some evidence from North America that indicates that *L. cinereus* may migrate, although there are no data to support this in Tucumán Province or in Argentina.

Lasiurus ega (Gervais)

Nycticeus ega Gervais, in F. Comptes de Castelnau, Expédition dans les parties centrales de l'Amérique du Sud de Rio de Janeiro à Lima, et de Lima au Para; exécutée par ordre du gouvernement français pendant les années 1843 à 1847, sous la direction de Grancis de Castelnau. P. Bertrand, Paris, (Sec. 7), Vol. 1, Pt. 2 (Mammifères):73, 1856.

Specimens Examined.—(9) Acheral, 1 (CML); Ciudad Capital, 1 (OMNH); Los Vázquez, 445 m, 2 (BMNH); San Miguel de Tucumán, 450 m, 4 (1 BMNH, 3 CML); Taff Viejo, 1 (CML).

Additional Record.—Muñecas (Romaña and Abalos, 1950).

Measurements.—External measurements (two males, three females, unless noted otherwise): total length, 120.0, 106.0, 119.2 (115.0–124.0); tail, 52.0, 46.0, 55.8 (50.0–60.5); hindfoot, 9.0, 6.5, 8.3 (5.0–10.0); ear, 20.0, 15.0, 15.3 (14.0–16.0); forearm (two males, four females), 47.0, 42.7, 46.8 (42.0–49.1); weight (one male), 13.0. Cranial measurements (one male, two females, unless noted otherwise): greatest length of skull, 16.4, 16.5, 17.0; condylobasal length, 15.4, 14.9, 16.0; least interorbital length, 4.5, 4.5, 4.5; zygomatic breadth (one male, one female), 11.2, 11.4; breadth of braincase, 8.2, 8.2, 8.7; length of maxillary toothrow (one male), 5.8; palatal length (one male), 5.5; length of mandibular toothrow (one male), 5.5; greatest length of mandible (one male), 12.1.

Reproduction.—See Table 3.

Habitat.—*Lasiurus ega* is known from northwestern, central, and eastern Argentina, excluding the provinces of Chaco, Santiago del Estero, and Entre Ríos, and northern Santa Fe (Bárquez, 1987). In Tucumán, this bat is common in the humid and transitional forests. *Lasiurus ega* often uses plants, especially palms, in city gardens as refuges; they have also been reported to roost in the roofs of dwellings.

Remarks.—Little is known about the biology of this species in Argentina. Myers (1977) discussed the reproductive biology of this species in Paraguay. Geographic variation in *L. ega* in the Chaco of Paraguay and Bolivia was discussed by Myers and Wetzel (1983). It is thought to be migratory.

Myotis albescens (E. Geoffroy)

Vespertilio albescens E. Geoffroy, Annales Museum d'Histoire Naturelle, Paris, 8:204, 1806.

Specimens Examined.—(15) Aguas Chiquitas, Sierras de Medina, 800 m, 1 (CM); Concepción, 1 (MACN); El Cadillal, Usina, 3 (CML); La Cocha, Dique San Ignacio, 1 (OMNH); Las Talas, 1 (CML); Las Talas, 4 km al N de Bella Vista, 1 (OMNH); Monteagudo, 4 (2 FCM, 1 MACN, 1 TTU); 3 km E Ticucho, cola de Cadillal Dique, 1 (OMNH); Ticucho, cola de embalse El Cadillal, 1 (OMNH); Tranquitas, 1 (MACN).

Measurements.—External measurements (two males, four females, unless noted otherwise): total length, 83.0, 90.0, 88.6 (84.0–94.0); tail, 25.0, 31.0, 34.6 (31.0–40.0); hindfoot, 7.5, 8.0, 7.4 (5.0–8.9); ear, 15.5, 14.0, 14.6 (14.0–15.7); forearm, 35.2, 34.1, 36.6 (35.9–37.3); weight (two males, three females), 7.0, 6.4, 7.8 (7.5–8.0). Cranial measurements (two males, three females, unless noted otherwise): greatest length of skull, 14.4, 13.6, 14.6 (14.2–15.0); condylobasal length, 13.4, 13.0, 13.7 (13.4–14.0); least interorbital length, 4.4, 4.0, 4.1 (4.1–4.1); zygomatic breadth (two males, two females), 8.6, 8.6, 8.6, 8.7; breadth of braincase, 7.4, 6.9, 7.2 (7.1–7.3); length of maxillary toothrow, 5.3, 5.2, 5.3 (5.2–5.5); palatal

length (two males, two females), 5.5, 5.4, 5.2, 5.8; length of mandibular tooththrow (one male, two females), 4.9, 5.2, 5.3; greatest length of mandible, 9.2, 10.2, 9.5 (9.3–9.6).

Reproduction.—See Table 3.

Habitat.—*Myotis albescens* is known from the provinces of the northwest and the northeast to south of Buenos Aires Province (Olrog and Lucero, 1981; Bárquez, 1987). In Tucumán, this species is found in grasslands and savannas (Lucero, 1983), in forests, along rivers, and in open Chacoan thorn scrub (Bárquez, 1987).

Remarks.—At Las Talas, individuals of *M. albescens*, *Eptesicus furinalis*, and *Tadarida brasiliensis* were found in the roof of a rural dwelling (Bárquez, 1988).

Myotis keaysi J. A. Allen

Myotis ruber keaysi J. A. Allen, Bulletin of the American Museum of Natural History, 33:383, 1914.

Specimens Examined.—(7) Agua Colorada, 3 (MACN); El Nogalar, km 43, Ruta 307, 1700 m, 1 (CML); Piedra Tendida, 12 km WNW Burruyacú, along Río Cajón, 2,500 ft., 1 (OMNH); Tranquitas, 2 (1 MACN, 1 TTU).

Measurements.—External measurements (one male): total length, 90.0; tail, 37.0; hindfoot, 8.0; ear, 14.0; forearm, 40.0; weight, 6.0. Cranial measurements (one male): greatest length of skull, 13.9; condylobasal length, 13.3; least interorbital length, 3.7; zygomatic breadth, 8.8; breadth of braincase, 7.1; length of maxillary tooththrow, 5.1; palatal length, 5.8; length of mandibular tooththrow, 5.2; greatest length of mandible, 9.2.

Habitat.—In Argentina, this species is known only from Salta and Tucumán (Bárquez, 1987). In other parts of its range, *M. keaysi* is commonly found at localities above 2000 m (Bárquez and Ojeda, 1992). In Tucumán, however, it has been captured at much lower elevations in transitional forest and montane forests. These localities are situated primarily in the northeastern part of the province, near Chacoan vegetation, and isolated from the principal mountain chains to the west (Bárquez, 1987; Bárquez and Ojeda, 1992).

Remarks.—This species, in addition to *Sturnira erythromos* and *Myotis nigricans*, was captured in nets placed along a river at Piedra Tendida (Mares et al., 1995). An adult male was captured in June at Piedra Tendida. Redford and Eisenberg (1992) do not show this bat as occurring in the southern cone.

Myotis levis (I. Geoffroy)

Vespertilio levis I. Geoffroy, Annales des Sciences Naturelles, Zoologie, ser. 1, 3:444–445, 1824.

Specimens Examined.—(55) Agua Rosada, 2 (CML); Aguas Chiquitas, 25 km NE San Miguel de Tucumán, 800 m, 5 (CM); Amaicha del Valle, 2000 m, 1 (OMNH); Colalao del Valle, 1 (BMNH); Concepción, 4 (3 BMNH, 1 MACN); Dique San Ignacio, 1 (CML); El Cadillal, 1 (CML); Horco Molle, 1 (CM); La Ciénaga, 2500 m, 1 (BMNH); La Higuera, 1 (CML); Las Pavas, Aconquija, 1 (MACN); Las Talas, 3 (CML); Leocadio Paz, 1 (MACN); Ñorco, Vivos, 2500 m, 2 (BMNH); San Miguel de Tucumán 7 (5 BMNH, 2 MACN); San Pedro de Colalao, 1 (CML); at km marker 42, on highway 364, south of San Pedro de Colalao, 4,700 ft., 13 (3 CML, 3 IADIZA, 7 OMNH); Tacanas 1 (CML); Tafí del Valle, 1 (CML); Tucumán, no specific locality, 2 (BMNH); Vivos, 5 (CML).

Measurements.—External measurements (five males, 16 females, unless noted otherwise): total length, 86.6 (75.0–91.0), 89.3 (77.0–100.0); tail, 39.0 (36.0–40.0), 40.2 (35.5–42.0); hindfoot (five males, 15 females), 7.8 (5.0–9.0), 8.7 (7.3–9.3); ear, 14.3 (14.0–15.5), 14.0 (13.0–16.0); forearm (four males, 15 females), 38.0 (36.8–40.0), 38.0 (36.7–40.0); weight (four males, 14 females), 5.2 (4.3–

5.5), 6.1 (4.4–8.0). Cranial measurements (two males, seven females, unless noted otherwise): greatest length of skull, 14.0, 14.4, 14.3 (14.1–14.8); condylobasal length, 13.3, 13.5, 13.5 (13.0–14.0); least interorbital length, 3.5, 3.6, 3.5 (3.4–3.7); zygomatic breadth (two males, six females), 8.6, 8.2, 8.6 (8.2–9.0); breadth of braincase, 7.1, 6.8, 6.9 (6.6–7.2); length of maxillary toothrow (two males, six females), 5.4, 5.6, 5.6 (5.4–5.8); palatal length (two males, six females), 6.4, 7.0, 6.6 (5.9–7.4); length of mandibular toothrow (two males, two females), —, 5.7, 5.8, 6.0; greatest length of mandible (two males, six females), 10.1, 10.2, 10.6 (10.4–10.8).

Reproduction.—See Table 3. Bárquez (1987) reported capturing lactating females from the end of December to the end of January in transitional forest at Aguas Chiquitas.

Molt.—Three adults, captured in January at San Pedro de Colalao, were molting on the dorsum.

Habitat.—This species is widely distributed throughout northern, central, and eastern Argentina as far south as Neuquén Province (Bárquez, 1987). Although preferring open, natural habitats, it is found also in urban areas; elevation ranges up to 3500 m (Bárquez, 1987). Many of the specimens were captured in transitional forest. Individuals from San Pedro de Colalao were collected in a rural dwelling; the surrounding habitat was transitional forest with a lot of secondary growth.

Remarks.—*Myotis levis* is one of the most common vespertilionid bats in the province, although little is known about its biology. This species is easily confused with other *Myotis*. At San Pedro de Colalao this species was captured with *Sturnira erythromos*.

Myotis nigricans (Schinz)

Vespertilio nigricans Schinz, Das Tierreich, 1:179, 1821.

Specimens Examined.—(8) Acheral, 1 (CML); Agua Colorada, 1 (TTU); Cerro del Campo, 1 (CML); El Cadillal, 25 km N San Miguel de Tucumán, 1 (CM); El Naranjo, 1 (TTU); Piedra Tendida, 12 km WNW Burruyacú, along Río Cajón, 2,500 ft., 1 (OMNH); Tafí Viejo, 2 (CML).

Additional Records.—Monte Bello, Río Chico (Romaña and Abalos, 1950).

Measurements.—External measurements (two males): total length, 78.0, 78.0; tail, 38.0, 31.0; hindfoot, 6.9, 7.0; ear, 15.7, 14.0; forearm, 33.0, 33.0; weight, 4.5, 3.5. Cranial measurements (one male): greatest length of skull, 13.1; condylobasal length, 12.8; least interorbital length, 3.4; zygomatic breadth, 8.3; breadth of braincase, 6.4; length of maxillary toothrow, 5.1; palatal length, 5.7; length of mandibular toothrow, 5.3; greatest length of mandible, 9.7.

Reproduction.—See Table 3. Little is known about the reproductive biology of this species in Argentina.

Molt.—The individual from Piedra Tendida was not molting.

Habitat.—In Argentina, this species is restricted to the northern provinces, Jujuy, Salta, Tucumán, Santiago del Estero, Chaco, Formosa, Corrientes, and Misiones (Bárquez, 1987). Based on capture records, *M. nigricans* prefers humid and transitional forests. Bárquez (1987) noted that this species has been captured in a variety of habitats, from Yungas forest to urban areas, in cities and in rural areas, under roofs and under tree bark.

Remarks.—Other bats collected at Piedra Tendida were *Sturnira erythromos* and *Myotis keaysi* (Mares et al., 1995). Individuals have been captured in February ($n = 1$), March ($n = 1$), and July ($n = 1$).

Family Molossidae
Eumops bonariensis (Peters)

Promops bonariensis Peters, Monatsberichte der Königlich Preussischen Akademie der Wissenschaften zu Berlin, 1874:232, 1874.

Specimens Examined.—(17) Aguas Chiquitas, 3 (CML); Aguas Chiquitas, Sierras de Medina, 800 m, 4 (CM); Reserva Provincial "Aguas Chiquitas" El Cadillal, 3 (CM); Las Talas, 4 km al N de Bella Vista, 3 (OMNH); 29 km NE San Miguel de Tucumán, 1 (CM); 28 km NE San Miguel de Tucumán, 3 (CM).

Measurements.—External measurements (three males, eight females): total length, 121.0 (117.0–128.0), 115.1 (105.0–129.0); tail, 40.5 (38.0–43.0), 37.8 (33.0–41.0); hindfoot, 9.6 (8.3–10.3), 8.4 (7.0–10.2); ear, 22.0 (21.4–23.0), 22.7 (21.9–24.0); forearm, 47.9 (47.3–48.7), 48.0 (44.8–49.0); weight, 18.2 (17.5–19.0), 17.4 (15.5–20.0). Cranial measurements (three males, eight females, unless noted otherwise): greatest length of skull, 19.3 (19.1–19.5), 18.9 (18.3–19.2); condylobasal length, 18.3 (18.1–18.6), 18.0 (17.2–18.4); least interorbital length, 4.3 (4.2–4.3), 4.2 (4.0–4.3); zygomatic breadth, 11.8 (11.5–12.0), 11.5 (11.1–11.7); breadth of braincase, 9.6 (9.5–9.7), 9.3 (8.8–9.7); length of maxillary tooth-row, 7.5 (7.3–7.6), 7.3 (7.1–7.5); palatal length (three males, seven females), 7.3 (7.1–7.4), 7.6 (7.2–7.9); length of mandibular tooth-row, 6.7 (6.6–6.9), 6.7 (6.5–7.3); greatest length of mandible, 14.0 (13.8–14.1), 13.8 (13.6–14.0).

Reproduction.—See Table 3. Bárquez (1987) reported that individuals captured at Las Talas at the end of March and the end of April were not reproductively active.

Habitat.—In Argentina, *E. bonariensis* has been recorded from the provinces of Buenos Aires, Santa Fe, Entre Ríos, Córdoba, and Tucumán (Bárquez, 1987). In Tucumán, this species prefers dense transitional forests, but may also be found in rural and open areas, even in roofs and tree holes. At Aguas Chiquitas, a locality surrounded by Chaco serrano, individuals were collected in nets placed across areas of calm water in the forest.

Remarks.—Bárquez (1987) discussed the relationship of *E. bonariensis* and *E. patagonicus*, revalidating the distinction of *E. patagonicus*. Both species are found in sympatry in Tucumán Province. At Las Talas *E. bonariensis* were collected with *E. patagonicus* (reproductively active), *E. furinalis*, *M. albescens*, *M. levis dinellii*, and *T. brasiliensis* (Bárquez, 1987). The biology of this species in Argentina is poorly known.

Eumops dabbenei Thomas

Eumops dabbenei Thomas, Annals and Magazine of Natural History, ser. 8, 13:481, 1914.

Specimens Examined.—(2) San Miguel de Tucumán, 2 (CML).

Reproduction.—A juvenile (with cartilaginous phalanges and deciduous upper incisors) was captured in a house in mid-December in the city of Tucumán (Bárquez and Loughheed, 1990; Bárquez and Ojeda, 1992).

Habitat.—In Argentina, *E. dabbenei* is known only from the provinces of Chaco, Santa Fe, and Tucumán (Bárquez, 1987; Bárquez and Loughheed, 1990; Bárquez and Ojeda, 1992).

Remarks.—Little is known about the biology of this species in Argentina.

Eumops glaucinus (Wagner)

Dysopes glaucinus Wagner, Archiv für Naturgeschichte, 9 (1):368, 1843.

Specimens Examined.—(2) San Miguel de Tucumán, 2 (CML).

Habitat.—In Argentina, *E. glaucinus* is known only from the provinces of Jujuy, Salta, and Tucumán (Bárquez, 1987; Bárquez and Loughheed, 1990). The inclusion of the provinces of Catamarca and La Rioja by Olrog and Lucero (1981) is not documented by specimens. In the city of Tucumán it roosts in trees and in cracks in buildings.

Eumops patagonicus Thomas

Eumops patagonicus Thomas, Annals and Magazine of Natural History, ser. 9, 13:234, 1924.

Specimens Examined.—(22) Burruyacú, 1 (MACN); Gobernador Piedrabuena, 20 (17 MACN, 3 TTU); Las Talas, 4 km al N de Bella Vista, 1 (OMNH).

Measurements.—External measurements (one male): total length, 92.4; tail, 35.8; hindfoot, 7.4; ear, 19.7; forearm, 45.4; weight, 15.0. Cranial measurements (one male): greatest length of skull, 18.4; condylobasal length, 16.5; least interorbital length, 4.0; zygomatic breadth, 10.4; breadth of braincase, 9.0; length of maxillary toothrow, 6.6; palatal length, 6.6; greatest length of mandible, 13.1.

Reproduction.—See Table 3.

Habitat.—In Argentina, this species is known from an isolated record in Chubut (type locality), Buenos Aires, Santa Fe, and all of the northern provinces except Jujuy and Catamarca. In Tucumán, *E. patagonicus* is found in open suburban and urban areas, especially in the Chaco.

Remarks.—Bárquez (1987) discussed the relationship of this species with *E. bonariensis* and synonymized *E. b. beckeri* with *E. patagonicus*.

Eumops perotis (Schinz)

Molossus perotis Schinz, in Cuvier, Das Thierreich, 1:870, 1821.

Specimens Examined.—(40) Concepción, 27 (7 BMNH, 20 MACN); Las Talas, 1 (CML); Plaza Independencia, San Miguel de Tucumán, 1 (CM); San Miguel de Tucumán, 10 (2 BMNH, 8 CML); San Pedro de Colalao, 1 (CML).

Additional Record.—Caspichango (Massoia, 1976).

Measurements.—External measurements (three males, seven females, unless noted otherwise): total length, 172.7 (170.0–178.0), 167.5 (155.0–180.0); tail, 60.3 (60.0–61.0), 61.8 (55.0–70.0); hindfoot (four males, six females), 16.1 (15.0–18.4), 15.0 (14.0–16.0); ear, 42.3 (35.0–49.0), 34.7 (33.0–35.0); forearm (six males, five females), 78.2 (75.8–82.5), 78.3 (77.3–80.0); weight (two males), 52.0, 65.0. Cranial measurements (four males, one female, unless noted otherwise): greatest length of skull, 31.0 (30.2–31.7), 29.3; condylobasal length, 30.4 (29.0–30.8), 27.2; least interorbital length (five males, three females), 5.3 (5.1–5.6), 5.8 (5.6–5.9); zygomatic breadth, 18.4 (17.5–18.8), 19.5; breadth of braincase, 13.4 (12.6–14.9), 12.6; length of maxillary toothrow (three males, four females), 12.4 (11.9–12.7), 12.9 (12.5–13.2); palatal length (four males, three females), 12.7 (9.0–14.2), 13.9 (13.2–15.0); length of mandibular toothrow (three males, four females), 13.4 (12.2–14.1), 13.8 (13.3–14.0); greatest length of mandible (three males, four females), 24.4 (24.1–24.7), 23.3 (23.0–23.6).

Reproduction.—See Table 3. Bárquez (1987) reported catching a juvenile in the city of Tucumán in mid-December that had deciduous dentition and cartilaginous phalanges.

Habitat.—This species ranges throughout all of northern Argentina, except the Chaco; it is distributed southward to central Córdoba (Bárquez, 1987). In the city

of Tucumán these bats live in palm trees and under roofs. In natural areas, they have been known to roost in rock crevices.

Molossops temminckii (Burmeister)

Dysops temminckii Burmeister, Systematische übersicht der Thiere Brasiliens. Georg Reimer, Berlin, p. 72, 1854.

Specimens Examined.—(9) Cerro del Campo, 2 (CML); El Cadillal, 1 (CML); La Higuera, 1 (CML); Las Mesadas, 3 (CML); Puesto Portadera, 2 (1 MACN, 1 TTU).

Additional Record.—San Miguel de Tucumán (Fornes and Massoia, 1968).

Measurements.—External measurements: forearm (two males, four females), 31.4, 31.7, 31.1 (30.0–31.5). Cranial measurements (two males, two females, unless noted otherwise): greatest length of skull (one male, one female), 13.8, 13.9; condylobasal length (one female), 14.8; least interorbital length (two males, three females), 3.7, 3.6, 3.7 (3.7–3.7); breadth of braincase, 7.0, 7.0, 7.0, 7.2; length of maxillary toothrow (one male, two females), 5.3, 4.9, 5.2; palatal length (one female), 6.1; length of mandibular toothrow (one male, two females), 5.5, 5.6, 5.8.

Reproduction.—See Table 3. A male with scrotal testes was collected at El Cadillal in mid-October (Bárquez, 1987).

Habitat.—In northwestern Argentina (Jujuy, Salta, Santiago del Estero, and Tucumán), the preferred habitat is Chaco. This species is also known from the Chaco of Formosa, Santa Fe, Corrientes, and Chaco provinces; isolated records have also been reported from Buenos Aires and Chubut provinces (Bárquez, 1987).

Remarks.—Myers and Wetzel (1983) reported dramatic geographic variation in this species in the Chaco of Paraguay, Bolivia, Brazil, and northern Argentina. Individuals are small and light in color in the northwestern Chaco, and large and dark in the eastern Chaco. Specimens from the base of the Andes are as large as, or larger than, those from the eastern Chaco. It appears that specimens from Tucumán Province follow this trend.

Molossus molossus (Pallas)

Vespertilio molossus Pallas, Miscellanea Zoologica. Hage Comitum, pp. 49–50, 1766.

Specimens Examined.—(7) Ciudad Tucumán, casa céntrica, 1 (OMNH); El Manantial, 1 (CML); San Miguel de Tucumán, 3 (CML); San Pedro de Colalao, 1 (CML); Trancas, 1 (CML).

Measurements.—External measurements (one female): total length, 98.0; tail, 40.0; hindfoot, 12.0; ear, 7.0; forearm, 38.0; weight, 10.0.

Reproduction.—See Table 3.

Habitat.—In Argentina, *M. molossus* is found in the northwestern provinces of Jujuy, Tucumán, Salta, and Santiago del Estero. In eastern Argentina, it ranges from Formosa, Corrientes, Chaco, and Misiones south to Entre Ríos and northern Buenos Aires (Bárquez, 1987). In Tucumán, this species roosts in tree holes and crevices, roofs, and tunnels. It is common in both urban and suburban areas.

Remarks.—This bat may form large colonial groups. Redford and Eisenberg (1992) do not show this species as occurring in Tucumán Province.

Nyctinomops macrotis (Gray)

Nyctinopus macrotis Gray, Annals of Natural History, 4:5, 1840.

Specimens Examined.—(6) San Miguel de Tucumán, 6 (CML).

Reproduction.—See Table 3.

Habitat.—In Argentina, *N. macrotis* has been reported only from the provinces of Jujuy, Salta, Tucumán, Catamarca, and La Rioja (Bárquez, 1987).

Remarks.—This species is common in the city of Tucumán where it uses buildings for shelter (Bárquez, 1987; Bárquez and Ojeda, 1992). Little is known about the biology of this species in Argentina.

Promops nasutus (Spix)

Molossus nasutus Spix, Simiarum et Vespertilionum Brasiliensium species novae. Monachii, p. 58, 1823.

Specimens Examined.—(3) Río Loro, 2 (OMNH); San Miguel de Tucumán, 1 (BMNH).

Reproduction.—See Table 3.

Habitat.—*Promops nasutus* is distributed in the Argentine provinces of Salta, Jujuy, Tucumán, Catamarca, Santiago del Estero, and Misiones (Bárquez, 1987).

Remarks.—The individuals from Río Loro were captured as they left a roost located in a crevice in a river bank (Bárquez, 1987).

Tadarida brasiliensis (I. Geoffroy)

Nyctinomus brasiliensis I. Geoffroy, Annales des Sciences Naturelles, Zoologie, 1:343, 1824.

Specimens Examined.—(113) Burreyacu, 6 (5 MACN, 1 TTU); Cerro San Javier, 1 (CML); Concepción, 10 (5 BMNH, 5 MACN); Dique San Ignacio, 20 (CML); El Cadillal, 1 (CML); Estancia El Cavao, 1 (CML); Estancia San Pedro, Vipos, 2 (CML); Gobernador Piedrabuena, 5 (2 MACN, 3 TTU); Horco Molle, 12 (CM); Biological Reserve at Horco Molle, at residencia, 3 (1 IADIZA, 2 OMNH); Iglesia, 3 (TTU); Instituto Lillo, San Miguel de Tucumán, 1 (CML); Las Juntas, 22 km W Choromoro on Hwy 312, 3,500 ft., 5 (3 IADIZA, 2 OMNH); Las Mesadas, 1 (CML); Las Pavas, 5 (MACN); Las Talas, 2 (CML); Las Talas, 4 km al N de Bella Vista, 2 (OMNH); Marcos Paz, 1 (CML); Playa Larga, 4 (CML); San Miguel de Tucumán, 14 (3 BMNH, 4 USNM, 7 CML); San Pedro de Colalao, 2 (CML); Ruta 307, km 19.7, camino a Tafi del Valle, 750 m, 3 (OMNH); Tacanas, 2 (CML); Tapia, 1 (CML); Timbó Nuevo, 4 (1 MACN, 3 TTU); Vipos, 2 (CML).

Additional Records.—Ingenio Lules (Romaña and Abalos, 1950); Monteagudo (Fornes and Massoia, 1967).

Measurements.—External measurements (nine males, eight females, unless noted otherwise): total length, 96.8 (91.0–102.0), 98.6 (87.7–105.0); tail, 35.9 (33.0–40.0), 37.2 (30.0–41.0); hindfoot, 7.9 (7.2–9.0), 8.6 (7.2–10.0); ear, 17.2 (13.0–21.5), 18.5 (12.0–21.0); forearm (seven males, ten females), 43.3 (41.3–45.0), 43.8 (42.0–45.0); weight (six males, six females), 12.2 (10.0–14.0), 11.5 (10.0–12.0). Cranial measurements (ten males, five females, unless noted otherwise): greatest length of skull, 16.7 (15.4–17.2), 16.5 (16.1–16.9); condylobasal length, 15.7 (14.5–16.2), 15.5 (15.5–15.7); least interorbital length (ten males, six females), 4.0 (3.8–4.2), 4.0 (3.9–4.0); zygomatic breadth (seven males, four females), 9.9 (9.3–10.4), 9.6 (9.2–9.9); breadth of braincase (ten males, six females), 8.4 (7.9–8.6), 8.3 (8.0–8.6); length of maxillary toothrow (ten males, six females), 5.7 (4.7–6.4), 6.0 (4.8–6.7); palatal length (seven males, five females), 6.8 (6.1–7.1), 6.2 (3.6–7.5); length of mandibular toothrow (six males, five females), 6.2 (5.9–6.6), 7.6 (6.2–12.0); greatest length of mandible (five males, four females), 12.1 (11.7–12.6), 11.9 (11.7–12.1).

Reproduction.—See Table 3.

Molt.—An adult male captured at Horco Molle in January was molting on both the dorsum and venter.

Habitat.—This is one of the most widely distributed species in Argentina,

found in all provinces north of 43°S latitude, except La Rioja, Chaco, and Corrientes (Bárquez, 1987). It is most common in transitional forest, Chaco, and montane forest. The specimens collected at Horco Molle were roosting behind a rain gutter.

Remarks.—In the province, this species is colonial and forms large groups that roost in caves, holes, crevices, tunnels, and roofs. In the city of Tucumán, *T. brasiliensis* is one of the most common species and is found roosting in building crevices and roofs. At Las Juntas, *Artibeus planirostris*, *Sturnira erythromos*, *Histiotus macrotus*, and *Lasiurus blossevillii* also were captured. *Sturnira erythromos* also was captured at Horco Molle.

Order Primates
Family Cebidae
Subfamily Cebinae
Cebus apella (Linnaeus)

Simia apella Linnaeus, Systema Naturae per regna tria naturae, secundum classis, ordines, genera, species cum characteribus, differentiis, synonymis, locis. Tenth edition. Laurentii Salvii, Stockholm, 1:28, 1758.

Specimens Examined.—(0) None.

Additional Record.—Dique Escaba (M. L. Campbell, personal observation).

Remarks.—Local inhabitants in the area surrounding the Embalse Escaba in southwestern Tucumán indicated that monkeys had been present in the area as late as the early 1980s (M. L. Campbell and J. K. Braun, personal observation), but we have been unable to confirm this. Redford and Eisenberg (1992) do not show this species as occurring in the province.

Order Carnivora
Family Canidae
Cerdocyon thous (Linnaeus)

Canis thous Linnaeus, Systema Naturae per regna tria naturae, secundum classis, ordines, genera, species cum characteribus, differentiis, synonymis, locis. Volume I. Regnum Animale. 12th edition. Laurentii Salvii, Stockholm, 1:60, 1766.

Specimens Examined.—(4) Monteros, 1 (MACN); Taficillo, 1 (CML); Tapia, 500 m, 1 (BMNH); Vipos, 1 (BMNH).

Measurements.—External measurements (one female): total length, 932.0; tail, 322.0; hindfoot, 140.0; ear, 67.0. Cranial measurements (one female): greatest length of skull, 127.6; condylobasal length, 133.0; least interorbital length, 26.2; zygomatic breadth, 74.4; breadth of braincase, 46.1; length of maxillary toothrow, 59.0; palatal length, 59.3; length of mandibular toothrow, 62.9; greatest length of mandible, 106.4.

Habitat.—*Cerdocyon thous* is distributed in northern Argentina east of the Andes, including the provinces of Salta, Jujuy, Tucumán, Formosa, Misiones, Corrientes, Santa Fe, Chaco, and Santiago del Estero (Olrog and Lucero, 1981). Lucero (1983) and Olrog and Lucero (1981) noted that this species prefers transitional and humid forests, and mountains, where it occurs up to 2500 m.

Remarks.—One individual each was captured in May, July, and October. The biology of this species was summarized by Berta (1982). Ginsberg and Macdonald (1990) noted that it is considered out of danger by the Argentine Wildlife Board

(Dirección Nacional de Fauna Silvestre). Nothing is known of the biology of this species in the province.

Pseudalopex culpaeus (Molina)

Canis culpaeus Molina, Saggio sulla storia naturale del Chili. S. Tommaso d'Aquino, Bologna, p. 293, 1782.

Specimens Examined.—(4) Aconquija, 1 (BMNH); Agua Rosada, 1 (CML); El Duraznito, 1 (CML); San Javier, 1 (CML).

Measurements.—External measurements (one female): hindfoot, 130.0; ear, 90.0. Cranial measurements (one female, two sex unknown): greatest length of skull, 130.6, 129.8, 129.2; condylobasal length, 129.4, 124.3, 129.0; least inter-orbital length, 23.1, 23.8, 24.0; zygomatic breadth, 67.9, 66.5, 67.5; breadth of braincase, 44.7, 44.5, 45.3; length of maxillary tooththrow, 59.5, 58.2, 58.2; length of mandibular tooththrow, 66.2, 64.9, 65.8; greatest length of mandible, 95.3,—,—.

Habitat.—In Argentina, the distribution of *P. culpaeus* extends as a narrow band from the northwest, widening southward to include all of the southern provinces south of Buenos Aires Province (Olrog and Lucero, 1981). This species prefers arid areas and steppes in the mountains at altitudes up to 4500 m (Olrog and Lucero, 1981; Lucero, 1983).

Remarks.—*Pseudalopex culpaeus* has an Appendix II ranking in Argentina (Fuller and Swift, 1984). The biology of this species was summarized by Ginsberg and Macdonald (1990), who also noted that it has endangered status in Argentina. The effects of hunting on populations of this species in Neuquén Province was examined by Novaro (1995).

Pseudalopex griseus (Gray)

Vulpes griseus Gray, Magazine of Natural History (Charlesworth's), 1:578, 1837.

Specimens Examined.—(4) Cerro del Campo, 800 m, 2 (BMNH); Tapia, 500 m, 1 (BMNH); Vipos, 500 m, 1 (BMNH).

Measurements.—External measurements (two males, two females): total length, 887.0, 829.0, 884.0, 887.0; tail, 347.0, 328.0, 322.0, 317.0; hindfoot, 131.0, 125.0, 120.0, 124.0; ear, 81.0, 70.0, 80.5, 82.5. Cranial measurements (two males): greatest length of skull, 124.4, 121.7; condylobasal length, 128.8, 125.4; least inter-orbital length, 24.8, 23.4; zygomatic breadth, 70.8, 70.7; breadth of braincase, 45.6, 45.9; length of maxillary tooththrow, 59.3, 59.3; palatal length, 56.4, 56.8; length of mandibular tooththrow, 66.0, 66.0; greatest length of mandible, 97.6, 97.6.

Habitat.—In Argentina, the geographic distribution of this species is similar to that of *P. culpaeus*, although it is not found in Jujuy and eastern Salta (Olrog and Lucero, 1981). Moreover, *P. culpaeus* is a fox of the high mountains, whereas *P. griseus* is primarily a lowland animal. This fox frequents steppes and arid shrubby regions in western, southern, and northeastern Tucumán Province (Lucero, 1983).

Remarks.—Two specimens were captured in August and two were captured in October. The Cerro del Campo specimens were listed as *P. gracilis* by Thomas (1926). In Argentina, this species is considered vulnerable (International Union for the Conservation of Nature, 1990, 1994). The biology of this species was summarized by Ginsberg and Macdonald (1990), who noted its endangered status. Hunting of this species has been banned in Tucumán Province, where little is known about its biology.

Pseudalopex gymnocercus (Fischer)

Procyon gymnocercus Fischer, Zoognosia, 3:xi, 178, 1814.

Specimens Examined.—(11) Agua Rosada, 1 (CML); Burruyacú, 1 (MACN); Chicligasta, 1 (CML); El Simbolar, 1 (CML); El Timbó, 4 (CML); Monteros, 1 (MACN); Nueva España, 1 (CML); Taff Viejo, 1 (CML).

Measurements.—External measurements (one male, one female): total length, 1010.0, 835.0; tail, 330.0, 305.0; hindfoot, 110.0, 120.0; ear, 80.5, 75.0. Cranial measurements (one male, three females, one sex unknown, unless noted otherwise): greatest length of skull (one male, one female, one sex unknown), 129.3, 123.6, 123.5; condylobasal length, 125.4, 123.5 (120.0–127.7), 117.5; least interorbital length (one male, two females, one sex unknown), 20.5, 22.5, 20.9, 23.1; zygomatic breadth (one male, three females), 63.6, 67.5 (64.0–71.4); breadth of braincase, 45.9, 45.2 (43.9–45.9), 43.1; length of maxillary toothrow (one male, one female, one sex unknown), 56.8, 55.0, 50.9; palatal length (three females, one sex unknown), 63.5 (61.5–64.6), 60.9; length of mandibular toothrow (one male, one sex unknown), 64.6, 60.0; greatest length of mandible (one male, one sex unknown), 93.2, 89.5.

Habitat.—According to Olrog and Lucero (1981), *P. gymnocercus* inhabits all of northern and central Argentina except Misiones Province. The southern distributional limits are northern Río Negro and Neuquén provinces. This fox is found in savannas, mountains, and forests up to 2000 m in elevation (Lucero, 1983).

Remarks.—Specimens have been collected in nearly every month: February ($n = 1$), March ($n = 1$), April ($n = 1$), May ($n = 2$), June ($n = 1$), July ($n = 2$), September ($n = 1$), and November ($n = 1$). Ginsberg and Macdonald (1990) summarized the biology of this species. Crespo (1971) studied the ecology of *P. gymnocercus* in La Pampa Province.

Family Felidae

Subfamily Felinae

Herpailurus yaguarondi (Lacépède)

Felis yaguarondi Lacépède, in Azara, Voyage dans l'Amérique Méridionale. Imprimeur-Libraire, Paris, Atlas, 1809, pl. 10, 1809.

Specimens Examined.—(3) Concepción, 1 (CML); El Bracho, 1 (CML); Villa Nougés, 1 (CML).
Additional Record.—Dique Escaba (M. L. Campbell, personal observation).

Measurements.—Cranial measurements (one male): greatest length of skull, 96.5; condylobasal length, 91.9; least interorbital length, 17.3; zygomatic breadth, 62.0; breadth of braincase, 42.1; length of mandibular toothrow, 20.7; greatest length of mandible, 58.1.

Habitat.—This species is distributed throughout northern and central Argentina south to northern Neuquén and Río Negro (Olrog and Lucero, 1981). *Herpailurus yaguarondi* prefers savannas, mountains, and forests to the southern limits of the province (Olrog and Lucero, 1981; Lucero, 1983).

Remarks.—The record of this species at Dique Escaba is based on information obtained from local residents who indicated that a darkly colored cat was present in the area (M. L. Campbell, personal observation). The status of this cat in Argentina is considered indeterminate (i.e., it is known to be either endangered, vulnerable, or rare, but there is too little information to denote a category). In Argentina, this species has an Appendix II ranking (Fuller and Swift, 1984).

Leopardus pardalis (Linnaeus)

Felis pardalis Linnaeus, *Systema Naturae per regna tria naturae, secundum classis, ordines, genera, species cum characteribus, differentiis, synonymis, locis*. Tenth edition. Laurentii Salvii, Stockholm, 1:42, 1758.

Specimens Examined.—(2) Cerro del Campo, 1 (CML); La Fronterita, 1 (MACN).

Additional Records.—Burruyacú; La Cocha (Olrog, 1976).

Measurements.—Cranial measurements (one male): greatest length of skull, 101.1; condylobasal length, 94.8; least interorbital length, 18.6; zygomatic breadth, 65.8; breadth of braincase, 51.3; greatest length of mandible, 64.6.

Habitat.—Ocelots are found only in the northernmost Argentine provinces and Tucumán. Olrog and Lucero (1981) and Lucero (1983) noted that this species is found in transitional forests, mountains, and savannas to southern Tucumán Province.

Remarks.—Cabrera (1961:177) listed a specimen of *Leopardus wiedii* from Burruyacú, Tucumán. *Leopardus wiedii* does not exist in the province. The specimen described is a young individual corresponding to the *Leopardus pardalis* from Cerro de Campo listed above (Olrog, 1976). This cat was listed as vulnerable in Argentina in 1990 (International Union for the Conservation of Nature, 1990), however it now is unlisted (International Union for the Conservation of Nature, 1994). In Argentina, this subspecies is listed in the Appendix I category and is protected (Fuller and Swift, 1984). This species is apparently still relatively common in the province, although it is not easily observed. The specimen from Cerro del Campo was collected in May. Specimens from Burruyacú were collected in 1971 and 1972, and from La Cocha in 1973 (Olrog, 1976).

Lynchailurus pajeros (Desmarest)

Felis pajeros Desmarest, Chat, *Felis*, Linn., Briss. Schreb., Cuv., in *Nouveau dictionnaire d'Histoire Naturelle, appliquée aux art, à l'agriculture, à l'économie rurale et domestique, à la médecine*, etc. Par une société de naturalistes et d'agriculteurs (nouvelle edition), 6:114, 1816.

Specimen Examined.—(1) Concepción, 1 (MACN).

Additional Records.—San Pedro de Colalao (M. A. Mares, personal observation); La Florida Reserva Provincial; Santa Ana Reserva Provincial (Anonymous, in press).

Habitat.—This species is distributed throughout most of Argentina, although its presence in the Chaco is questionable (Olrog and Lucero, 1981; Garcia-Perea, 1994). *Lynchailurus pajeros* is found in mountains, grasslands, and savannas in the western part of the province (Lucero, 1983).

Remarks.—Lucero (1983) mentioned that no recent data indicate its presence in the province, but Mares photographed a specimen taken above San Pedro de Colalao in 1976. In Argentina, this species has an Appendix II ranking (Fuller and Swift, 1984). The status of *L. pajeros* is given as indeterminate by the International Union for the Conservation of Nature (1994). Records of this species are rare. The animal photographed by Mares (Mares and Ojeda, 1984:583) was taken in the high-elevation grasslands in the area near San Pedro de Colalao. Garcia-Perea (1994) reviewed the systematics and biogeography of the members of this genus.

Oncifelis geoffroyi (d'Orbigny and Gervais)

Felis geoffroyi d'Orbigny and Gervais, *Nouveau bulletin des sciences par la Société Philomatique*, Paris, 1844:40, 1844.

Specimens Examined.—(11) Atahona, 1 (CML); Concepción, 1 (MACN); Departamento Burreyacu, 1 (CML); La Ramada, 1 (CML); Leales, 1 (CML); Quebrada de la Angostura, 1 (CML); Quebrada de los Matos, 1 (CML); San Pedro de Colalao, Junta de los Ríos, 2 (CML); Trancas, 1 (CML); Vipos, 500 m, 1 (BMNH).

Additional Records.—El Manantial (Burmeister, 1943); Piedra Tendida, 12 km WNW Burreyacu, along Río Cajón, 2,500 ft. (M. L. Campbell, in litt.); Pozo Hondo (R. M. Bárquez, personal observation); San Pedro de Colalao (M. A. Mares, personal observation).

Measurements.—External measurements (one young female): total length, 679.0; tail, 255.0; hindfoot, 94.0; ear, 44.0; weight, 81.2. Cranial measurements (one male, three females, unless noted otherwise): greatest length of skull, 91.6, 78.6 (65.7–88.6); condylobasal length (one male, two females), 88.4, 61.2, 76.1; least interorbital length, 16.2, 14.3 (11.2–17.2); zygomatic breadth, 61.4, 53.9 (43.4–64.9); breadth of braincase, 44.6, 40.6 (39.1–43.0); length of maxillary toothrow (one male, two females), 22.1, 19.1, 21.1; length of mandibular toothrow (one male, two females), 21.5, 19.3, 19.2; greatest length of mandible, 58.5, 48.8 (39.2–57.8).

Habitat.—*Oncifelis geoffroyi* is distributed throughout all of Argentina except Tierra del Fuego (Olrog and Lucero, 1981). In 1990, locals stated that this species of cat occurred in the transitional forest around Piedra Tendida (M. L. Campbell, personal observation).

Remarks.—In Argentina, this species has an Appendix II ranking (Fuller and Swift, 1984). One specimen was captured in September and one in October. Ximenez (1975) summarized the biology of this species. *Oncifelis geoffroyi* is common in the province, especially in the Chaco and monte habitats; it is less common in forested habitats.

Oreailurus jacobita (Cornalia)

Felis jacobita Cornalia, *Memorie Societa Italiana di Scienze Naturali e Museo Civico di Storia Naturale di Milano*, 1:3, 1865.

Specimen Examined.—(1) Morro del Zarzo, 5000 m, 1 (MACN).

Additional Records.—Laguna Huaca Huasi, Cumbres Calchaquies, approximately 4250 m; Campo de la Gallina, Serranía de Quilmes o El Cajón (Scrocchi and Halloy, 1986); Cumbres Calchaquies (Lucero, 1983).

Measurements.—External measurements (one sex unknown): total length, 1120.0; tail, 480.0; hindfoot, 115.0.

Habitat.—*Oreailurus jacobita* inhabits the high altitude arid and semiarid mountains found in the western part of the province. The Andean cat has a distribution restricted to high elevations in Jujuy, Salta, Tucumán, and Catamarca provinces (Cabrera, 1961; Olrog and Lucero, 1981).

Remarks.—The locality of the specimen examined was given as Sarzo, Aconquija, Tucumán, by Cabrera (1961:205); the locality given above is that which appears on the specimen tag. In the Argentine Andes, *O. jacobita* was considered rare (International Union for the Conservation of Nature, 1990); currently its status is indeterminate (International Union for the Conservation of Nature, 1994). This species has an Appendix I listing in Argentina and is protected (Fuller and Swift, 1984). S. Halloy photographed this species at Laguna Huaca Huasi on a morning in 1980. Scrocchi and Halloy (1986) suggest that this species may be confused with *Lynchailurus pajeros garleppi*, which is similar in appearance, but which occurs along the eastern slopes of the Peruvian Andes. Little is known about the biology of *O. jacobita*.

Puma concolor (Linnaeus)

Felis concolor Linnaeus, Mantissa Plantarum, 2:522, 1771.

Specimens Examined.—(15) Burreyacú, 1 (CML); Cajón de la Ovejera, Chorrillos, 5 (CML); Chicligasta, 1 (CML); Gobernador Garmendia, 1 (CML); Graneros, 1 (CML); Leales, 1 (CML); Los Puestos, 1 (CML); Río Nífo, 1 (CML); San Miguel de Tucumán, 2 (CML); Trancas, 1 (CML).

Additional Records.—Dique Escaba (M. L. Campbell, personal observation); El Manantial (Burmeister, 1943); Laguna Huaca Huasi (N. Ovrusky, personal communication).

Measurements.—Cranial measurements (one male, three sex unknown, two immature females): greatest length of skull, 156.0, 163.3 (154.0–181.0), 145.4, 121.9; condylobasal length, 148.0, 155.0 (143.0–174.0), 133.2, 108.3; least interorbital length, 29.6, 31.4 (28.2–35.0), 27.4, 21.9; zygomatic breadth, 109.3, 112.5 (102.4–126.6), 96.2, 79.3; breadth of braincase, 64.6, 66.9 (66.0–67.5), 64.9, 61.8; length of maxillary toothrow, 52.6, 54.5 (52.0–58.8), —, —; palatal length, 69.5, 69.9 (64.9–76.8), —, —; length of mandibular toothrow, 62.7, 60.6 (57.3–66.3), —, —; greatest length of mandible, 113.0, 121.3 (110.0–135.0), 103.5, 81.1.

Habitat.—Mountain lions are common in the Chacoan thorn scrub, the monte, and in the mountains of Tucumán Province.

Remarks.—In Argentina, this species has an Appendix II ranking (Fuller and Swift, 1984). Currier (1983) summarized the biology of this species. Individuals have been collected in January ($n = 1$), February ($n = 1$), April ($n = 1$), June ($n = 1$), July ($n = 5$), September ($n = 1$), and November ($n = 1$). Specimens from Leales and Cajón de la Ovejera are young individuals. Local residents of Dique Escaba indicated that this species occurred in the area (M. L. Campbell, personal observation). Pumas are as common in the Chaco as in the more mountainous regions of the province. Little is known about the biology of the species in Argentina. Cajal and Lopez (1987) found that in the San Guillermo Reserve, San Juan Province, guanacos and vicuñas were an important component of the diet of pumas.

Subfamily Pantherinae
Panthera onca (Linnaeus)

Felis onca Linnaeus, Systema Naturae per regna tria naturae, secundum classis, ordines, genera, species cum characteribus, differentiis, synonymis, locis. Tenth edition. Laurentii Salvii, Stockholm, 1:42, 1758.

Specimens Examined.—(0) None.

Additional Record.—Tucumán, no specific locality given (De Moussy, 1864).

Remarks.—This species is probably extinct in the province. Originally widespread in distribution, the range of this species has constricted due to hunting and deforestation (Roig, 1991). It still occurs in the neighboring provinces of Salta and Jujuy. Redford and Eisenberg (1992) did not extend the distribution of this species to Tucumán Province.

Family Mustelidae
Subfamily Lutrinae
Lontra longicaudis (Olfers)

Lutra longicaudis Olfers, in Eschwege, Journal von Brasilien, oder Vermischte nachrichten aus Brasilien, auf wissenschaftlichen reisen gesammelt von W. C. von Eschwege . . . Weimer, Im verlage des Gr. H. S. pr. Londes-industries-comptoirs, 15(2):233, 1818.

Specimens Examined.—(1) Río Colorado, Famaillá, 1 (CML).

Measurements.—External measurements (one female): total length, 1030.0; tail, 410.0; hindfoot, 60.6. Cranial measurements (one female): greatest length of skull, 106.7; condylobasal length, 106.2; least interorbital length, 20.8; zygomatic breadth, 67.9; breadth of braincase, 52.6; length of maxillary toothrow, 28.5; palatal length, 48.0; length of mandibular toothrow, 33.9; greatest length of mandible, 68.4.

Habitat.—This otter prefers lagunas, estuaries, and rivers (Olrog and Lucero, 1981; Lucero, 1983).

Remarks.—Otters are rare in the province. Cabrera (1957) and Olrog and Lucero (1981) listed this species as *L. platensis*. Although found widely in central and northern Argentina, the distribution is becoming fragmented. The high value placed on the fur encourages illegal hunting. This species is considered in the Appendix I category by Argentina and is protected (Fuller and Swift, 1984). A conservation action plan and status report is available for the otter (Foster-Turley et al., 1990).

Subfamily Mephitinae *Conepatus chinga* (Molina)

Viverra chinga Molina, Saggio sulla storia naturale del Chili. S. Tommaso d'Aquino, Bologna, p. 288, 1782.

Specimens Examined.—(5) Estancia El Cavao, 1 (CML); La Angostura, 1 (CML); La Cuesta, 1 (CML); Quebrada de las Burras, 1 (CML); Río Las Tacanas, 1 (CML).

Additional Record.—El Infiernillo (R. M. Bárquez, personal observation); El Infiernillo, about 3500 m (R. A. Ojeda, personal observation).

Measurements.—External measurements (one female): total length, 660.0; tail, 250.0; hindfoot, 60.0. Cranial measurements (three females, two sex unknown, unless noted otherwise): greatest length of skull, 64.0 (59.1–67.0), 62.8, 64.3; condylobasal length, 61.6 (56.1–64.5), 61.1, 63.5; least interorbital length, 17.1 (16.4–17.7), 16.8, 15.3; zygomatic breadth (one female, one sex unknown), 40.2, 37.6; breadth of braincase, 31.7 (31.0–32.1), 29.6, 27.0; length of maxillary toothrow, 20.0 (19.0–20.5), 19.9, 19.1; palatal length (one female), 28.2; length of mandibular toothrow, 22.4 (19.5–23.9), 22.4, 21.9; greatest length of mandible, 40.6 (37.1–43.6), 40.1, 39.8.

Habitat.—*Conepatus chinga* prefers savannas, mountains, and forests as well as the arid, shrubby areas of western Tucumán Province up to 3500 m (Cabrera, 1957; Lucero, 1983).

Remarks.—The extreme variation in coloration and size and stripe morphology shown by *Conepatus* has led to the description of numerous species. A systematic revision is needed. The few records that exist for the province do not permit us to make a detailed assessment of the color variation. In most systematic works, *C. rex*, which was described by Thomas (1898), is included in *chinga*. The individual observed at El Infiernillo was completely white dorsally and had a white tail, a description that corresponds to that of *C. rex* (Olrog and Lucero, 1981). The distribution of *C. rex* would include the mountainous areas of the province.

Subfamily Mustelinae *Eira barbara* (Linnaeus)

Mustela barbara Linnaeus, Systema Naturae per regna tria naturae, secundum classis, ordines, genera, species cum characteribus, differentiis, synonymis, locis. Tenth edition. Laurentii Salvii, Stockholm, 1:46, 1758.

Specimens Examined.—(5) Chicligasta, 1 (CML); Cumbres de San Pablo, 1 (BMNH); Monteros, 1 (MACN); Tucumán, no specific locality, 1 (MACN); Yerba Buena, 1 (CML).

Measurements.—External measurements (one male): total length, 1030.0; tail, 420.0; hindfoot, 78.0; ear, 35.0. Cranial measurements (one male): greatest length of skull, 118.0; condylobasal length, 104.0; least interorbital length, 25.6; zygomatic breadth, 71.6; breadth of braincase, 46.5; length of maxillary toothrow, 30.4; palatal length, 59.3; length of mandibular toothrow, 40.3; greatest length of mandible, 77.2.

Habitat.—Eiras are found in northern Argentina east of the Andes and as far south as southern Santiago del Estero Province (Olrog and Lucero, 1981). Lucero (1983) notes that this species is found in savannas, forests, and woodlands.

Remarks.—Individual specimens have been collected in July ($n = 1$) and August ($n = 1$). Eiras are quite common in the province, although records of them are scarce. An individual was seen in dense forest above 1800 m along Highway 65 in Catamarca Province near the Catamarca–Tucumán provincial border (M. A. Mares, personal observation).

Galictis cuja (Molina)

Mustela cuja Molina, Sagio sulla storia naturale del Chili, S. Tommaso d'Aquino, Bologna, p. 291, 1782.

Specimens Examined.—(22) Concepción, 15 (1 CML, 2 MACN, 12 BMNH); El Infiernillo, 1 (CML); El Portezuelo, 1 (CML); El Timbó, 2 (CML); La Higuera, 1 (CML); La Reducción, 1 (CML); Tafí Viejo, 1 (CML).

Additional Record.—Cumbres Calchaquies (E. Dominguez, S. Halloy, and E. Terán, personal communication).

Measurements.—External measurements (five males, six females, unless noted otherwise): total length (four males, six females), 512.5 (470.0–550.0), 480.3 (360.0–560.0); tail, 144.0 (120.0–170.0), 139.3 (100.0–160.0); hindfoot, 57.1 (50.0–70.0), 50.0 (45.0–55.0); ear, 23.5 (20.5–25.0), 20.5 (16.0–29.0). Cranial measurements (six males, unless noted otherwise): greatest length of skull, 70.0 (58.8–74.4); condylobasal length, 69.9 (58.5–74.9); least interorbital length, 16.6 (14.6–17.9); zygomatic breadth, 42.3 (36.1–44.5); breadth of braincase, 34.3 (25.3–37.8); length of maxillary toothrow, 19.3 (11.8–22.0); palatal length (five males), 32.2 (27.4–34.7); length of mandibular toothrow, 23.9 (19.8–25.4); greatest length of mandible, 42.8 (36.5–45.6).

Habitat.—*Galictis* is found in nearly all of Argentina except Santa Cruz Province and Tierra del Fuego (Olrog and Lucero, 1981). This mustelid prefers mountains, savannas, and arid scrubby regions; it is found up to 3500 m (Olrog and Lucero, 1981; Lucero, 1983).

Remarks.—Individuals have been captured in May ($n = 1$), June ($n = 2$), July ($n = 1$), August ($n = 2$), September ($n = 1$), and October ($n = 3$).

Lyncodon patagonicus (de Blainville)

Mustela patagonica de Blainville, Ostéographie, on description iconographique comparée du squelette et du système dentaire des mammifères récents et fossiles . . . par H.-M. Ducrotay de Blainville, . . . précédé d'une étude sur la vie et les travaux de M. de Blainville, par M. P. Nicard. J.-B. Baillièrè et fils, 1839–1864, 4 volumes. Mammalia, partie 10 (Viverra):1, 1842.

Specimen Examined.—(1) Banda del Río Salí, 1 (CML).

Additional Records.—Amaicha del Valle; Colalao del Valle (Olrog, 1976); El Timbó (Olrog, 1958).

Measurements.—External measurements (one female): total length, 330.0; tail,

190.0; hindfoot, 29.5; ear, 15.0. Cranial measurements (one female): greatest length of skull, 45.7; condylobasal length, 46.0; least interorbital length, 10.9; zygomatic breadth, 24.3; breadth of braincase, 21.3; length of mandibular toothrow, 15.8; greatest length of mandible, 27.1.

Habitat.—*Lyncodon* is widely distributed in Argentina from Tucumán Province in the north to Córdoba Province in the east and southward to Santa Cruz Province. This species is found in arid, shrubby terrain in the lowlands, and in the mountains up to 2000 m (Olrog and Lucero, 1981; Lucero, 1983).

Remarks.—Olrog (1958) noted that this species was not rare in the province and that it was common in the Valle Calchaqufes up to 2000 m. We have not been able to verify the existence of the specimens listed in the additional records. Olrog (1958, 1976) noted that these specimens from Amaicha del Valle and Colalao del Valle were collected in November; those from El Timbó were collected in May. The specimen from Banda del Río Salí was collected in June.

Family Procyonidae
Subfamily Procyoninae
Nasua nasua (Linnaeus)

Viverra nasua Linnaeus, Systema Naturae per regna tria naturae, secundum classis, ordines, genera, species cum characteribus, differentiis, synonymis, locis. Volume 1. Regnum Animale. 12th edition. Laurentii Salvii, Stockholm, 1:64, 1766.

Specimens Examined.—(3) Cerro San Javier, 1 (CML); Tafí Viejo, 1 (CML); Trancas, 1 (CML).

Measurements.—Cranial measurements (one subadult sex unknown): greatest length of skull, 104.0; least interorbital length, 23.2; zygomatic breadth, 53.9; breadth of braincase, 44.3; length of maxillary toothrow, 34.6; palatal length, 61.6; length of mandibular toothrow, 36.8; greatest length of mandible, 71.0.

Remarks.—The specimen from Cerro San Javier is a young animal. This species is not commonly observed in the province, which constitutes its southern distributional limits. Two populations are found in Argentina. The first occurs in the provinces of Chaco, Corrientes, Formosa, Misiones, and Santa Fe. The second, found in northwestern Argentina, occurs in Jujuy, Salta, and Tucumán. The Gran Chaco appears to separate the two. Mares et al. (1981, 1989) comment on the biology of this species in the neighboring province of Salta. Redford and Eisenberg (1992) did not extend the distribution of this species to Tucumán Province.

Procyon cancrivorus (G. Cuvier)

Ursus cancrivorus G. Cuvier, Tableau elementaire de l'histoire naturelle des Animaux, Paris, p. 113, 1798.

Specimens Examined.—(5) Chicligasta, 1 (CML); Concepción, 3 (1 BMNH, 1 MACN, 1 CML); Los Vázquez, 1 (BMNH).

Additional Records.—Dique Escaba (M. L. Campbell, personal observation); 2 km below La Helderera along Hwy 307, 3,500 ft. (J. K. Braun, personal observation; M. L. Campbell, personal observation); Piedra Tendida (R. M. Bárquez, personal observation).

Measurements.—External measurements (one male, one female): total length, 950.0, 880.0; tail, 330.0, 330.0; hindfoot, 135.0,—; ear, 60.0,—. Cranial measurements (one male, one female): greatest length of skull, 118.4, 115.0; condylobasal length, 125.5, 121.0; least interorbital length, 28.8, 26.9; zygomatic breadth, 92.2, 83.0; breadth of braincase, 61.2, 57.1; length of maxillary toothrow, 49.7, 48.7; palatal length, 62.5, 63.0; length of mandibular toothrow, 55.7, 54.3; greatest length of mandible, 96.9, 93.1.

Habitat.—Crab-eating raccoons are, in general, found in savannas, forests, and woodlands, usually along water courses (Lucero, 1983). *Procyon cancrivorus* is found in all of northern Argentina east of the Andes as far south as San Luis Province (Olrog and Lucero, 1981); Cabrera (1957) had earlier placed the southern distributional limits in northern Catamarca Province. The vegetation at La Heladera was Yungas forest dominated by laurel and Mirtaceae (M. L. Campbell, personal observation). The scat, found in the cavity of a very large tree, contained freshwater crabs and large land snails (J. K. Braun, personal observation; M. L. Campbell, personal observation).

Remarks.—Single specimens have been captured in September, October, and December. The record of this species at Dique Escaba is based on information obtained from local residents (M. L. Campbell, personal observation).

Order Perissodactyla

Family Tapiridae

Tapirus terrestris (Linnaeus)

Hippopotamus terrestris Linnaeus, Systema Naturae per regna tria naturae, secundum classis, ordines, genera, species cum characteribus, differentiis, synonymis, locis. Tenth edition. Laurentii Salvii, Stockholm, 1:74, 1759.

Specimens Examined.—(3) Las Pavas, 3 (CML).

Additional Record.—Departamento Famaillá (Lucero, 1983).

Remarks.—Lucero (1983) noted that the tapir has been extinct in the province since 1940, although an isolated population may still exist in some of the heavily forested areas. This species is listed as an Appendix II species in Argentina and is protected (Fuller and Swift, 1984). Historically, tapirs were found in the Yungas forest and gallery forests of the Chacoan thorn scrub, always near water. The distribution has contracted due to hunting pressure and habitat modification (Roig, 1991). Tapirs are found in the provinces of Misiones, Corrientes, Formosa, Chaco, Salta, and Jujuy (Olrog and Lucero, 1981).

Order Artiodactyla

Family Tayassuidae

Catagonus wagneri (Rusconi)

Platygonus carlesi wagneri, Rusconi, Anales del Museo Nacional de Historia Natural "Bernardino Rivadavia," 36:231.1930.

Specimens Examined.—(0) None.

Additional Records.—No specimens of this species have been collected in the province but Olrog, Ojeda, and Bárquez (personal observation) have seen signs of its presence in the northeastern part of the province near the specimen locality (in Santiago del Estero) cited by Olrog et al. (1976). Lucero (1983) also suggested that this peccary may occur in the province. This species was found by Mares in neighboring Santiago del Estero, just a few kilometers from the Tucumán border.

Remarks.—The Chacoan peccary is listed as vulnerable in Argentina (International Union for the Conservation of Nature, 1990). It is endemic to the Gran Chaco of Argentina, Bolivia, and Paraguay. The biology of this species is summarized by Mayer and Wetzel (1986).

Pecari tajacu (Linnaeus)

Sus tajacu Linnaeus, Systema Naturae per regna tria naturae, secundum classis, ordines, genera, species cum characteribus, differentiis, synonymis, locis. Tenth edition. Laurentii Salvii, Stockholm, 1:50, 1758.

Specimens Examined.—(4) Cerro del Campo, 1800 m, 3 (CML); Departamento Chicligasta, 1 (CML).

Additional Records.—Aguas Chiquitas (P. Capllonch, personal communication); Dique Escaba (M. L. Campbell, personal observation); El Nogalar, = Río los Sosa, km 43.0, Ruta 307 (S. Ojeda, personal communication); Piedra Tendida, 12 km WNW Burruyacú, along Río Cajón, 2,500 ft. (M. L. Campbell, personal observation).

Measurements.—Cranial measurements (one female, one subadult sex unknown): greatest length of skull, 450.0, 203.0; condylobasal length, 215.0, 172.0; least interorbital length, 54.0, 44.5; zygomatic breadth, 117.8, 85.5; breadth of braincase, 53.9, 52.9; length of maxillary toothrow,—, 46.2; palatal length, 142.0, 115.0; length of mandibular toothrow,—, 53.0; greatest length of mandible,—, 131.0.

Habitat.—The distribution of the collared peccary includes north-central Argentina east of the Andes and the Yungas forest (Olrog and Lucero, 1981). The southernmost distributional limits are San Luis and northeastern Mendoza provinces. This species is found in savannas, woodlands, and forests of thick vegetation (Olrog and Lucero, 1981; Lucero, 1983). Meyer and Weyrauch (1966) reported that this peccary occurred in subtropical humid forest. Locals interviewed at the Piedra Tendida locality indicated that this peccary is found in the area, but is heavily hunted; it has retreated into the surrounding hills (M. L. Campbell, personal communication). The record of this species is based on information obtained from locals at Dique Escaba who indicated that this species is present in the area (M. L. Campbell, personal communication).

Remarks.—The peccary captured at Cerro del Campo is a young individual. Specimens were collected in April ($n = 1$) and September ($n = 1$). Although this species is common in the province, its populations have been reduced by hunting and habitat conversion.

Tayassu pecari (Link)

Sus pecari Link, Beiträge zur Naturgeschichte, 2:104, 1795.

Specimens Examined.—(0) None.

Remarks.—Information on the biology of this species was presented by Mayer and Wetzel (1987). This species tends to inhabit the forested regions of northern Argentina (Olrog and Lucero, 1981). Its presence in the province is unknown, although Meyer and Weyrauch (1966) reported it as a component of the fauna of the subtropical humid forest.

Family Camelidae

Lama guanicoe (Müller)

Camelus guanicoe Müller, Mit einer ausführlichen Erklärung ausgefertigt. Des ritters Carl von Linne . . . Vollständigen Natursystems supplements und register-ban über aller sechs theile oder classen des tierreichs. G. N. Raspe, Nurnberg, p. 50, 1776.

Specimen Examined.—(1) Nevados del Aconquija, Glacial del Cochuna, 4550 m, 1 (CML).

Additional Records.—Sierras del Cajón; Cumbres Calchaquies; Cumbres de Santa Barbara; Sierra del Aconquija (Cajal, 1983); Sierras del Aconquija (De Moussy, 1864); Cumbres Calchaquies, Alto de Muñoz (E. Dominguez, S. Halloy, and E. Terán, personal communication).

Measurements.—Cranial measurements (one sex unknown): greatest length of skull, 280.0; condylobasal length, 267.0; least interorbital length, 101.3; zygomatic breadth, 123.7; breadth of braincase, 69.7; length of maxillary toothrow, 62.6; palatal length, 143.5.

Habitat.—This species is distributed from southern Argentina (Santa Cruz Province), where they are relatively abundant, northward to Jujuy Province. In the northern parts of the distribution, guanacos are much less abundant. In Tucumán, guanacos inhabit mountains up to 4000 m (Olrog and Lucero, 1981; Lucero, 1983).

Remarks.—Guanacos are listed as an Appendix II species in Argentina (Fuller and Swift, 1984). The biology of the guanaco has been summarized in Cajal (1991) and Torres (1992). Guanacos are present in La Florida Natural Park, but there are no density estimates. Cajal (1983) estimated 1000 guanacos were present in the Cumbres de Santa Barbara. Aconquija has been proposed as a protected area. This species was originally distributed throughout most of the country, including Chaco, Santa Fe, and Buenos Aires provinces. The range has constricted due to habitat modification and hunting pressure. Cajal (1983) and Cajal and Amaya (1985) reviewed diverse aspects of the biology and history of the guanaco.

Vicugna vicugna (Molina)

Camellus (sic) *vicugna* Molina, Saggio sulla storia naturale del Chili. S. Tommaso d'Aquino, Bologna, 1782:313.

Specimens Examined.—(0) None.

Additional Records.—Sierras del Aconquija, Departamento Taff del Valle (De Moussy, 1864).

Remarks.—We are unable to verify the precision of the information given by De Moussy (1864). Vicuñas are distributed in the high Andean regions from Jujuy to northern Mendoza (Olrog and Lucero, 1981), although Cajal and Puig (1992) noted that the distribution extended only to northern San Juan Province. Redford and Eisenberg (1992) did not extend the distribution of this species to Tucumán Province.

Family Cervidae

Subfamily Odocoileinae

Hippocamelus antisensis (d'Orbigny)

Cervus antisensis d'Orbigny, Annales Museum d'Histoire Naturelle, Paris, 3:91, 1834.

Specimen Examined.—(1) Cumbres del Aconquija, 1 (CML).

Additional Record.—Laguna Huaca Huasi (S. Halloy, personal communication).

Measurements.—Cranial measurements (one male): greatest length of skull, 255.0; least interorbital length, 73.5; breadth of braincase, 71.0; length of maxillary toothrow, 67.1; palatal length, 116.2; length of mandibular toothrow, 74.7; greatest length of mandible, 227.0.

Habitat.—The huemul is found in the Andes of Salta, Jujuy, Tucumán, Catamarca, and La Rioja (Olrog and Lucero, 1981). This species inhabits the rocky steppes between 3000–4000 m (Olrog and Lucero, 1981; Lucero, 1983).

Remarks.—This deer is considered vulnerable in Argentina (International Union for the Conservation of Nature, 1990, 1994) and is ranked as an Appendix I species (Fuller and Swift, 1984) by Argentina and is protected. The biology was summarized by Moreno (1993). Huemuls were intensively hunted; this species is in danger of being extirpated from the province, although several populations still occur in the central highlands.

Mazama americana (Erxleben)

Moschus americanus Erxleben, Systema regni animalis per classes, ordines, genera, species, varietates, cum synonymia et historia animalium. Classis. I. Mammalia. Weygandianis, Lipsiae, 1:324, 1777.

Specimens Examined.—(0) None.

Additional Records.—On two separate occasions Mares observed these deer standing on the road to Tafi del Valle at the approximate altitude of Piedras Coloradas; Dique Escaba (M. L. Campbell, personal communication); 0.5 km N of Las Higuierillas on Hwy 308, 3,000 ft. (M. L. Campbell, personal communication); Tucumán, no specific locality (Meyer and Weyrauch, 1966).

Habitat.—The distribution of *M. americana* includes the forested regions of Jujuy, Salta, Tucumán, Formosa, Chaco, Santa Fe, Corrientes, and Misiones (Olrog and Lucero, 1981). In Tucumán, this species is found in transitional and humid forests; the southernmost limits of its distribution are along the border with Catamarca Province (Olrog and Lucero, 1981; Lucero, 1983).

Remarks.—The biology of this species has been summarized by Moreno (1993). It is either rare or difficult to observe in its preferred habitat of dense, humid forest. Meyer and Weyrauch (1966) report this deer in the subtropical humid forest of Tucumán. At Dique Escaba, locals indicated that *M. americana* occurred in the area; four piles of scat were found at the Las Higuierillas locality (M. L. Campbell, personal communication).

Mazama gouazoupira (G. Fischer)

Cervus gouazoupira G. Fischer, Zoognosia, 3:465, 1814.

Specimens Examined.—(4) Chicligasta, 3 (CML); Leales, 1 (CML).

Additional Records.—Near the campground near Cochuna (R. A. Ojeda, personal observation); El Cadillal (personal observation); Piedra Tendida, 12 km WNW Burreyacu, along Río Cajón, 2,500 ft. (M. L. Campbell, personal communication).

Measurements.—Cranial measurements (two females): greatest length of skull, 159.5, 169.0; condylobasal length, 147.8, 164.0; least interorbital length, 39.8, 39.9; zygomatic breadth, 72.0, 74.0; breadth of braincase, 55.6, 54.1; length of maxillary toothrow, 40.6, 52.6; palatal length, 92.6, 106.5; length of mandibular toothrow, 45.4, 61.5; greatest length of mandible, 132.9, 143.0.

Habitat.—*Mazama gouazoupira* is more widely distributed than *M. americana*, occurring from east of the Andes to the northeastern provinces, southward to San Luis Province (Olrog and Lucero, 1981). Lucero (1983) notes that this species is abundant in the open savannas, woodlands, thickets, and mountains up to 2000 m along the border with the province of Catamarca. This deer seems to prefer the Chacoan habitat found in the eastern parts of the province.

Remarks.—Moreno (1993) summarized the biology of this species. Scat of this species was found at Piedra Tendida (transitional forest) and hunters indicated that it was a common species in the area (M. L. Campbell, personal communication). Although there are few records and little is known of its biology, this species is more abundant than *M. americana*.

Ozotoceros bezoarticus (Linnaeus)

Cervus bezoarticus Linnaeus, Systema Naturae per regna tria naturae, secundum classis, ordines, genera, species cum characteribus, differentiis, synonymis, locis. Tenth edition. Laurentii Salvii, Stockholm, 1:67, 1758.

Remarks.—An expedition report dated 1825–1826 stated that this species once occurred in large numbers in the region between Vipos and Trancas (Roig, 1991).

Jackson (1987) and Moreno (1993) have summarized the biology of this species. It is no longer found in the province. Redford and Eisenberg (1992) did not extend the distribution of this species to Tucumán Province.

Order Lagomorpha

Family Leporidae

Sylvilagus brasiliensis (Linnaeus)

Lepus brasiliensis Linnaeus, *Systema Naturae per regna tria naturae, secundum classis, ordines, genera, species cum characteribus, differentiis, synonymis, locis*. Tenth edition. Laurentii Salvii, Stockholm, 1:58, 1758.

Specimens Examined.—(8) Campo de las Chuñas, San Pedro de Colalao, 1 (CML); Cerro del Campo, 800 m, 1 (BMNH); El Portezuelo, San Pedro de Colalao, 2 (CML); El Taficillo, 3 (CML); Las Mesadas, 1 (CML).

Additional Records.—El Cadillal (R. M. Bárquez, personal observation); Playa Larga (R. M. Bárquez, personal observation).

Measurements.—External measurements (two males): total length, 390.0, 348.0; tail,—, 19.0; hindfoot, 80.0, 74.0; ear, 75.0, 60.5. Cranial measurements (two males): greatest length of skull, 67.4, 70.8; condylobasal length, 60.5, 58.0; least interorbital length, 14.2, 17.2; zygomatic breadth, 32.7, 33.5; breadth of braincase, 25.3, 24.6; length of maxillary toothrow, 14.0, 12.6; palatal length, 27.8, 31.0; length of mandibular toothrow, 14.0, 12.7; greatest length of mandible, 46.8, 62.5.

Habitat.—Lucero (1983) gives the habitat as transitional forest, open woodlands, and savannas, in mountains up to 2000 m.

Remarks.—This herbivorous species is generally nocturnal and solitary.

DISCUSSION

Our data provide a great deal of information on a rich fauna of mammals that has not been well studied to date. Certainly the many specimens will prove to be useful to systematists in the years to come, as will the tissues and chromosomes. Moreover, to date there has been little quantitative data on habitat selection, distribution, and reproduction. Regarding the latter, there have been few studies to offer comparative data on patterns of reproduction for most groups of mammals in South America (Hamlett, 1992; Harder, 1992; Lacher, 1992). South American bats have also received little attention from the standpoint of their reproductive patterns; however, Myers (1977) and Myers and Wetzel (1983) provided a great deal of information on bats of the Chaco of Paraguay, located not far from Tucumán Province. Pearson and Pearson (1989) studied reproduction in three species of vespertilionid bats in southern Argentina, located much farther away from Tucumán Province than Paraguay, geographically speaking, although still within Argentina.

In the Chaco, it was shown that reproductive activity for four species of vespertilionid bats began as early as the winter month of May, when spermatozoa were found in the reproductive tracts of females (Myers, 1977). Reproductively active Chacoan bats from a wide variety of taxa were found mainly from August through October (Myers and Wetzel, 1983). In southernmost Argentina, the bats that were studied were pregnant in the late spring and summer months of October through December (Pearson and Pearson, 1989). We did not do histological or other microscopic examinations of specimens, although fluid-preserved specimens are available for laboratory analyses. In examining the data for all the bats col-

lected, we found that almost all gross reproductive activity (as determined by embryos, enlarged testes, and lactation) occurred during the late spring and summer months of September through January. Only a few individuals of any species showed any evidence of reproductive activity during the winter (May–July) (e.g., *Sturnira erythromos*, *Artibeus planirostris*, *Lasiurus ega*), and none was pregnant or lactating. These results are in accord with the studies conducted in Paraguay and in southern Argentina. Where winters are harsh in Tucumán (e.g., the high mountains), we would expect that bats will show the strict limitations on month of parturition described by Pearson and Pearson (1989). Where conditions are somewhat less stringent in winter (e.g., the Chaco or moist subtropical forest), we would expect bats to show occasionally some activity in colder months. The bats of Tucumán Province are clearly responding to the area in a manner that suggests that parturition is keyed to the warmer months of the year, a pattern that may obtain until truly tropical conditions are encountered, when much more complex patterns of reproduction are possible (Wilson, 1979). Only a larger data base will clarify these patterns over a broad geographic and climatologic scale, as well as under different conditions of allopatry, sympatry, and seasonality of food resources.

Our work documents that 68 nonrodent species of mammals occur, or have recently occurred, in Tucumán Province. Additionally, we have suggested that *Priodontes maximus*, the giant armadillo, may still be found in the Chacoan scrublands of extreme northeastern Tucumán. The species is known to occur in the neighboring provinces of Salta and Santiago del Estero. Although there are likely several provinces in Argentina that support a similar number of mammal species as Tucumán, these provinces are much larger (e.g., Salta, which is seven times larger than Tucumán) and have a portion of their territory located within the tropics.

Because of its small size, long history of extensive human habitation, economic and agricultural development, and limited size of macrohabitats, Tucumán can be considered to be a model system for studying the effects of human population density, economic development, and modern agricultural techniques on the natural environment. With its moist subtropical forest, rich montane woodlands, extensive lowland Chacoan thorn scrub, high-elevation and low-elevation deserts, and glacial watersheds, the province has experienced, and is experiencing, the challenges of rapid development, while attempting to control in some manner the effects of such development on the natural environment. Certainly the history of economic development in Tucumán has had a pronounced influence on the natural habitats of the province and on its mammal fauna.

From the conservation standpoint, some of the most important species are nonrodents. Indeed, Argentina has only one threatened or endangered rodent (the chinchilla, *Chinchilla lanigera*), although some additional potential candidates for protection exist. Still, all other protected, threatened, and endangered mammals are nonrodents and nonbats. Although Tucumán has supported European human populations for almost four-and-a-half centuries, and native populations for millennia, and even though it is presently Argentina's most densely settled province, there have been relatively few extirpations of mammals.

Six species have likely been extirpated from the province during historic times: the jaguar (*P. onca*), tapir (*Tapirus*), pampas deer (*Ozotoceros*), vicuña (*Vicugna*), black-capped capuchin monkey (*Cebus*), and giant anteater (*Myrmecophaga*). The first four were eliminated due to hunting, whereas the giant anteater and the

monkey may have occurred in low numbers in the dry Chaco (anteater) or low montane forests (monkey) and been eliminated due both to hunting pressures and habitat modification. Two other species, the three-banded armadillo (*Tolypeutes*) and the otter (*Lontra*) are in very low numbers in Tucumán, their populations reduced by hunting and habitat modification. Both were likely common in the past.

There are four other species in Tucumán that are rare, and hunting pressures almost certainly have had an adverse effect on their numbers, but most of these were probably rare in any case (e.g., *Cabassous*, *L. pajeros*, *O. jacobita*, *Catagonus*). Thus, when viewed as a fauna of more than 100 species, the mammals of Tucumán would seem to have been reduced by “only” six species. But this reduction in the number of species supported in the province has not occurred in a haphazard manner, with species disappearance occurring across taxonomic categories. Rather it is the larger mammals that have been most strongly affected. We will deal with the rodents in a subsequent paper, but few rodents appear to have disappeared from the province due to human activities. Larger mammals are more susceptible to human depredation, serving as food for humans in some cases, competitors in others, and dangerous predators in at least one case.

Among Tucumán’s 68 nonrodent species, fully 12 species, or 19% of the nonrodent fauna, have either been eliminated, or are in danger of being extirpated from the province. Among these are the largest-bodied species of mammals found in the province, as well as several important carnivores. If we also exclude bats from consideration, we find that of the 39 nonbat and nonrodent species that occurred in Tucumán Province within the last 200 years, 12 of 39, or 31%, have been extirpated or are at very low population levels, thus almost a third of the larger mammals are no longer found in the province. This is a significant loss of economically and ecologically important species, as well as a loss of species that were spectacular inhabitants of the rich habitats of Tucumán Province.

We suggest that it is not too late to act to recover a significant proportion of the species that have been lost. There is little hope of bringing back a controversial species such as the jaguar, but vicuñas could be reintroduced to the high mountains of the province and tapirs to the forests. Monkeys could also be brought back to the forest they inhabited only a relatively short time ago. Similarly, *Ozotoceros* would not appear to present special difficulties for reintroduction. By setting aside Chacoan thorn scrub reserves, the giant armadillo, giant anteater, *Cabassous*, and *Tolypeutes* could also be either protected or reintroduced.

The recent history of the province involves failed efforts (fortunately) to introduce exotic species such as red deer (*Cervus elephas*) to the alder forests and montane grasslands. It would take much less effort, and be more logical, to recover the fauna of large mammals that has disappeared from Tucumán, thereby impoverishing the fauna of the province and the lives of the people who live there. The ecological situation of Tucumán, while serious, is far from hopeless. If provincial leaders can find the will to act, and if the citizenry can be educated to appreciate its own rich mammal fauna rather than the fauna of Europe, it is highly likely that the large-mammal fauna of Tucumán can be returned to a good approximation of the fauna that occurred in the province at the time of the colonization of South America. In this way, Tucumán could serve not as an indicator of how important species disappear as a result of human activities, but rather how major faunal elements can be preserved in managed reserves and, with protection, in the natural habitats where they once roamed.

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GAZETTEER

Localities are listed in both alphabetical and numerical order. Departments are given in parentheses. Numbers in parentheses correspond to numbered localities in Figure 8.

- Acheral (Monteros)—27°07' 65°27' (109).
- Aconquija (Chicligasta)—27°13' 66°08' (99).
- Aconquija, 3000 m (Chicligasta)—27°13' 66°08' (99).
- Agua Colorada (Burruyacú)—26°26' 64°53' (72).
- Agua Rosada (Trancas)—26°22' 65°26' (15).
- Agua Rosada, San Pedro de Colalao (Trancas)—26°22' 65°26' (15).
- Aguas Chiquitas (Burruyacú)—26°37' 65°12' (35).
- Aguas Chiquitas, El Cadillal, 800m (Burruyacú)—26°37' 65°12' (35).
- Aguas Chiquitas, Sierras de Medina, 800m (Burruyacú)—26°37' 65°12' (35).
- Aguas Chiquitas, 25 km NE San Miguel de Tucumán, 800 m (Burruyacú)—26°37' 65°12' (35).
- Alderetes (Cruz Alta)—26°49' 65°08' (63).
- Amaicha del Valle (Tafí del Valle)—26°36' 65°55' (1).
- Amaicha del Valle, 2000 m (Tafí del Valle)—26°36' 65°55' (1).
- Anta Mapú (Burruyacú)—26°31' 64°43' (74).
- Atahona (Simoca)—27°25' 65°17' (83).

- Banda del Río Salí (Cruz Alta)—26°50' 65°10' (62).
 Biological Reserve at Horco Molle, 2,400 ft. (Yerba Buena)—26°45' 65°21' (45).
 Biological Reserve at Horco Molle, near residencia, 2,400 ft. (Yerba Buena)—26°45' 65°21' (45).
 Burruyacú (Burruyacú)—26°30' 64°45' (73).
 Burruyacú, 1300 m (Burruyacú)—26°30' 64°45' (73).
 Cafayate, 45 km S, along Hwy 40 (Tafí del Valle)—26°20' 65°58' (4).
 Cajón de la Ovejera, Chorrillos (Burruyacú)—26°21' 64°55' (70).
 Campo de la Gallina, Serranía de Quilmes o El Cajón (Tafí del Valle)—(not located).
 Capital, San Miguel de Tucumán (Capital)—26°50' 65°13' (50).
 Casa de Piedra, Río Los Sosa (Monteros)—27°03' 65°37' (106).
 Casa de Piedra, Ruta 307, km 23.9, 850m (Monteros)—27°03' 65°37' (106).
 Caspichango (Monteros)—27°04' 65°30' (112).
 Cerro de Raco, Trancas (Tafí Viejo)—26°43' 65°30' (56).
 Cerro de Tafí Viejo, 2400 m (Tafí Viejo)—26°42' 65°17' and 26°44' 65°16' (between 38 and 44).
 Cerro del Campo (Burruyacú)—26°35' 64°57' (68).
 Cerro del Campo, 800 m (Burruyacú)—26°35' 64°57' (68).
 Cerro del Campo, 1800 m (Burruyacú)—26°35' 64°57' (68).
 Cerro San Javier (Yerba Buena)—26°47' 65°24' (42).
 Chicligasta (Simoca)—27°28' 65°07' (84).
 Ciudad Capital (Capital)—26°50' 65°13' (50).
 Ciudad Tucumán, casa céntrica (Capital)—26°50' 65°13' (50).
 Colalao del Valle (Tafí del Valle)—26°22' 65°57' (3).
 Concepción (Chicligasta)—27°20' 65°35' (93).
 Cuesta del 25, Ruta 9, entrada al Cadillal (Tafí Viejo)—26°37' 65°12' (34).
 Cumbres Calchaqués—(no specific locality) 26°27' 65°43' (5).
 Cumbres de San Pablo—(probably 52).
 Cumbres de Santa Barbara (Trancas)—26°00'–26°15' 65°43' (11).
 Cumbres del Aconquija—(no specific locality) 27°13' 66°08' (98, 99) to 27°00' 65°55' (100).
 Departamento Burruyacú—(no specific locality) 26°30' 64°55'.
 Departamento Chicligasta—(no specific locality) 27°20' 65°35'.
 Departamento Famaillá—(no specific locality) 26°55' 65°30'.
 Dique Escaba (J. B. Alberdi)—27°40' 65°46' (94).
 Dique San Ignacio (La Cocha)—27°44' 65°40' (89).
 El Bracho (Cruz Alta)—26°59' 65°11' (61).
 El Cadillal (Tafí Viejo)—26°37' 65°12' (34).
 El Cadillal Dike, 25 km NW San Miguel de Tucumán (Tafí Viejo)—26°37' 65°12' (34).
 El Cadillal, Estación de Piscicultura (Tafí Viejo)—26°37' 65°12' (34).
 El Cadillal, Usina (Tafí Viejo)—26°37' 65°12' (34).
 El Cadillal, 25 km N San Miguel de Tucumán (Tafí Viejo)—26°37' 65°12' (34).
 El Cajón (Burruyacú)—26°32' 64°52' (69).
 El Duraznito (Tafí Viejo)—26°40' 65°11' (37).
 El Indio, Ruta 307 (Monteros)—27°02' 65°40' (104).
 El Infiernillo (Tafí del Valle)—26°44' 65°47' (119).
 El Manantial (Lules)—26°51' 65°17' (53).
 El Naranjal (Monteros)—27°02' 65°41' (105).
 El Naranjo (Burruyacú)—26°40' 65°03' (65).
 El Nogalar, km 43, Ruta 307, 1700m (Monteros)—27°01' 65°40' (111).
 El Nogalar, = Río los Sosa, km 43.0, Ruta 307 (Monteros)—27°01' 65°40' (111).
 El Portezuelo (Trancas)—26°08' 65°27' (21).
 El Simbolar (Trancas)—26°14' 65°23' (19).
 El Timbó (Burruyacú)—26°42' 65°08' (41).
 Embalse Escaba (J. B. Alberdi)—27°40' 65°46' (94).
 Escuela Normal, Monteros (Monteros)—27°10' 65°30' (102).
 Estancia El Cavao (Burruyacú)—26°30' 64°45' (71).
 Estancia San Pedro, Vipos (Trancas)—26°29' 65°22' (30).
 Garmendia, Departamento Burruyacú (Burruyacú)—26°34' 64°33' (75).
 Gobernador Garmendia (Burruyacú)—26°34' 64°33' (75).
 Gobernador Piedrabuena (Burruyacú)—26°45' 64°40' (76).
 Graneros (Graneros)—27°39' 65°27' (90).
 Horco Molle (Yerba Buena)—26°45' 65°21' (45).
 Horco Molle, 15 km SW San Miguel de Tucumán (Yerba Buena)—26°45' 65°21' (45).

- Horco Molle, 15 km W San Miguel de Tucumán (Yerba Buena)—26°45' 65°21' (45).
 Horco Molle, 25 km NW San Miguel de Tucumán (Yerba Buena)—26°45' 65°21' (45).
 4 km W of junction 338 and road to Horco Molle, on road to San Javier, 2,750 ft. (Yerba Buena)—
 26°49' 65°21' (57).
 Iglesia (not located).
 Ingenio Amalia (Capital)—26°52' 65°13' (51).
 Ingenio Lules (Lules)—26°55' 65°20' (55).
 Ingenio San Pablo (Famaillá)—26°54' 65°19' (54).
 Ingenio Santa Lucía (Monteros)—27°06' 65°31' (108).
 Instituto Lillo (Capital)—26°49' 65°13' (50).
 Instituto Lillo, San Miguel de Tucumán (Capital)—26°49' 65°13' (50).
 La Angostura (Tafí del Valle)—26°55' 65°41' (114).
 La Ciénaga, 2500 m (Tafí del Valle)—26°46' 65°39' (117).
 La Cocha (La Cocha)—27°47' 65°34' (87).
 La Cocha, Dique San Ignacio (La Cocha)—27°44' 65°40' (89).
 La Cocha, 380m (La Cocha)—27°47' 65°34' (87).
 La Cuesta (Trancas)—(not located).
 La Florida Reserva Provincial—(no specific locality).
 La Fronterita (Famaillá)—27°02' 65°28' (113).
 La Heladera, 2 km below, along Hwy 307, 3,500 ft. (Monteros)—27°01' 65°40' (103).
 La Higuera (Trancas)—26°23' 65°26' (27).
 La Quebradita, 12 km W, km 81 along Hwy 307, 9,500 ft. (Tafí del Valle)—26°44' 65°45' (116).
 La Ramada (Burruyacú)—26°42' 64°57' (67).
 La Reducción (Lules)—27°57' 65°22' (59).
 Laguna Huaca Huasi (Tafí Viejo)—26°41' 65°44' (120).
 Laguna Huaca Huasi, Cumbres Calchaquies, approximately 4250 m (Tafí Viejo)—26°41' 65°44' (120).
 Las Higuierillas, 0.5 km N on Hwy 308, 3,000 ft. (J. B. Alberdi)—27°47' 65°50' (95).
 Las Higuierillas, 5 km N on Hwy 308, 2,900 ft. (J. B. Alberdi)—27°44' 65°50' (95).
 Las Juntas, 22 km W Choromoro on Hwy 312, 3,500 ft. (Trancas)—26°24' 65°31' (26).
 Las Mesadas (Trancas)—26°27' 65°30' (14).
 Las Pavas (Chicligasta)—27°15' 65°52' (97).
 Las Pavas, Aconquija (Chicligasta)—27°15' 65°52' (97).
 Las Talas (Leales)—27°00' 65°17' (60).
 Las Talas, 4 km al N de Bella Vista (Leales)—27°00' 65°17' (60).
 Las Talitas (Monteros)—(not located).
 Leales (Leales)—27°12' 65°18' (78).
 Leocadio Paz (Trancas)—26°09' 65°18' (23).
 Los Puestos (Leales)—27°17' 65°00' (80).
 Los Romanos (Leales)—27°24' 65°08' (82).
 Los Sarmientos (Río Chico)—27°24' 65°41' (91).
 Los Vázquez (Capital)—26°50' 65°13' (50).
 Los Vázquez, 445m (Capital)—26°50' 65°13' (50).
 Lules, 3 km W (Lules)—26°56' 65°23' (58).
 Mala Mala (Lules)—26°47' 65°33' (118).
 Marcos Paz (Yerba Buena)—26°49' 65°17' (47).
 Monte Bello (Río Chico)—27°22' 65°45' (92).
 Monte Bello (Trancas)—26°14' 65°33' (7).
 Monteagudo (Simoca)—27°31' 65°17' (85).
 Monteros (Monteros)—27°10' 65°30' (102).
 Morro del Zarzo, 5000 m (Tafí del Valle)—27°00' 65°54' (100).
 Muñecas (Capital)—26°47' 65°15' (52).
 Near the campground near Cochuna (Concepción)—27°18' 65°55' (121).
 Nevados del Aconquija, Glacial del Cochuna, 4550 m (Chicligasta)—27°13' 66°08' (98).
 Ñorco, 2500 m (Trancas)—26°29' 65°22' (28).
 Ñorco, Vipos, 2500 m (Trancas)—26°29' 65°22' (28).
 Nueva España (Leales)—27°16' 65°12' (81).
 Piedra Buena (Burruyacú)—26°44' 64°40' (76).
 Piedra Tendida (Burruyacú)—26°30' 64°52' (69).
 Piedra Tendida, 12 km WNW Burruyacú, along Río Cajón, 2,500 ft. (Burruyacú)—26°30' 64°52' (69).
 Piedras Coloradas (Monteros)—27°04' 65°40' (101).
 Playa Larga (Monteros)—27°03' 65°40' (107).

- Plaza Independencia, San Miguel de Tucumán (Capital)—26°50' 65°13' (50).
 Pozo Hondo (Graneros)—27°49' 65°20' (86).
 Puesto Portadera (Burruyacú)—(not located).
 Quebrada de la Angostura (Trancas)—26°12' 65°31' (8).
 Quebrada de las Burras (Trancas)—26°19' 66°04' (6).
 Quebrada de los Matos (Trancas)—26°20' 65°22' (13).
 Quebrada de Lules, 11 km NW San Pablo (Lules)—26°52' 65°25' (48).
 Quebrada del Toro (Trancas)—26°18' 65°21' (20).
 Raco, Sierra San Javier (Tafí Viejo)—26°38' 65°26' (33).
 Rearte Norte (Trancas)—26°06' 65°28' (25).
 Reserva Provincial "Aguas Chiquitas" El Cadillal (Burruyacú)—26°37' 65°12' (35).
 Reserva Provincial El Cadillal "Aguas Chiquitas" (Burruyacú)—26°37' 65°12' (35).
 Río Colorado (Famailá)—27°09' 65°21' (110).
 Río de Los Sosa, km 19.7, Ruta 307, camino a Tafí del Valle, 700 m (Monteros)—27°05' 65°40' (96).
 Río de Los Sosa, km 19.7, Ruta 307, camino a Tafí del Valle, 750 m (Monteros)—27°05' 65°40' (96).
 Río de Los Sosa, km 23.9, Ruta 307, camino a Tafí del Valle, 850 m (Monteros)—27°04' 65°40' (106).
 Río de Los Sosa, km 24.9, Ruta 307, camino a Tafí del Valle, 850 m (Monteros)—27°04' 65°40' (106).
 Río Las Tacanas (Trancas)—26°12' 65°27' (10).
 Río Loro (Burruyacú)—26°37' 65°12' (34).
 Río Los Sosas, Ruta 307, km 23.9 (Monteros)—27°04' 65°40' (106).
 Río Nío (Burruyacú)—26°26' 64°56' (66).
 Ruta 307, km 19.7, camino a Tafí del Valle, 750 m (Monteros)—27°05' 65°40' (96).
 Ruta 307, km 23.9, 850 m (Monteros)—27°04' 65°40' (106).
 San Fernando (Trancas)—26°22' 65°27' (17).
 San Javier (Yerba Buena)—26°47' 65°23' (42).
 San Javier, Ciudad Universitaria (Tafí Viejo)—26°48' 65°23' (43).
 San Miguel de Tucumán (Capital)—26°50' 65°13' (50).
 San Miguel de Tucumán, 450m (Capital)—26°50' 65°13' (50).
 San Miguel de Tucumán, 28 km NE (Burruyacú)—26°37' 65°07' (64).
 San Miguel de Tucumán, 29 km NE (Burruyacú)—26°37' 65°07' (64).
 San Miguel de Tucumán, 17 km NW (Tafí Viejo)—26°41' 65°18' (18).
 San Miguel de Tucumán, 25 km NW (Tafí Viejo)—26°38' 65°20' (22).
 San Pablo (Lules)—26°52' 65°19' (54).
 San Pablo, 11 km al NO (Lules)—26°52' 65°25' (48).
 San Pedro de Colalao (Trancas)—26°14' 65°29' (16).
 San Pedro de Colalao, Junta de los Ríos (Trancas)—26°14' 65°29' (16).
 San Pedro de Colalao, 11 km S (Trancas)—26°20' 65°33' (12).
 San Pedro de Colalao, south of, at km marker 42, on highway 364, 4,700 ft. (Trancas)—26°20' 65°33' (12).
 Santa Ana Reserva Provincial (Río Chico and J. B. Alberdi)—27°30' 65°55' (88).
 Santa Rosa de Leales (Leales)—27°09' 65°15' (77).
 Serranía de Quilmes-Cajón (Tafí del Valle)—26°35' 66°10' (2).
 Sierra de Tucumán—(no specific locality).
 Sierra del Aconquija (Monteros and Tafí del Valle)—27°00' 65°55' (100).
 Sierras de Medina, Aguas Chiquitas, "El Cadillal" (Burruyacú)—26°37' 65°12' (35).
 Sierras del Cajón (Tafí del Valle)—26°35' 66°10' (2).
 Tacanas (Leales)—27°08' 64°49' (79).
 Taco Yana (Trancas)—26°11' 65°30' (9).
 Tafí, 2000 m—(no specific locality).
 Tafí del Valle (Tafí del Valle)—26°52' 65°41' (115).
 Tafí Viejo (Tafí Viejo)—26°44' 65°16' (44).
 Taficillo (Tafí Viejo)—26°42' 65°17' (38).
 Tapia (Trancas)—26°36' 65°18' (32).
 Tapia, 500 m (Trancas)—26°36' 65°18' (32).
 Tapia de Tucumán, 600 m (Trancas)—26°36' 65°18' (32).
 Ticucho (Trancas)—26°31' 65°15' (31).
 Ticucho, cola de embalse El Cadillal (Trancas)—26°31' 65°14' (39).
 Ticucho, entrando por cola del Dique el Cadillal (Trancas)—26°31' 65°14' (39).
 Ticucho, 3 km E, cola de Cadillal Dique (Trancas)—26°31' 65°14' (39).

- Timbó Nuevo (Burruyacú)—26°42' 65°07' (40).
 Trancas (Trancas)—26°13' 65°17' (24).
 Tranquitas (Burruyacú)—26°37' 65°02' (36).
 Tucumán—(no specific locality).
 Tucumán, 450 m (Capital)—26°50' 65°13' (50).
 Tucumán, 1500m—(no specific locality).
 Villa Nogués (Lules)—26°51' 65°23' (52).
 Vipos (Trancas)—26°29' 65°22' (29).
 Vipos, Estancia San Pedro (Trancas)—26°29' 65°22' (30).
 Vipos, 500 m (Trancas)—26°29' 65°22' (29).
 Yerba Buena (Yerba Buena)—26°49' 65°19' (46).
1. Amaicha del Valle (Tafí del Valle)—26°36' 65°55'.
 Amaicha del Valle, 2000 m (Tafí del Valle)—26°36' 65°55'.
 2. Serranía de Quilmes-Cajón (Tafí del Valle)—26°35' 66°10'.
 Sierras del Cajón (Tafí del Valle)—26°35' 66°10'.
 3. Colalao del Valle (Tafí del Valle)—26°22' 65°57'.
 4. Cafayate, 45 km S, along Hwy 40 (Tafí del Valle)—26°20' 65°58'.
 5. Cumbres Calchaquies-(Trancas and Tafí del Valle)—26°27' 65°43'.
 6. Quebrada de las Burras (Trancas)—26°19' 66°04'.
 7. Monte Bello (Trancas)—26°14' 65°33'.
 8. Quebrada de la Angostura (Trancas)—26°12' 65°31'.
 9. Taco Yana (Trancas)—26°11' 65°30'.
 10. Río Las Tacanas (Trancas)—26°12' 65°27'.
 11. Cumbres de Santa Barbara (Trancas)—26°00'–26°15' 65°43'.
 12. San Pedro de Colalao, 11 km S (Trancas)—26°20' 65°33'.
 San Pedro de Colalao, south of, at km marker 42, on highway 364, 4,700 ft. (Trancas)—
 26°20'65°33'.
 13. Quebrada de los Matos (Trancas)—26°20' 65°22'.
 14. Las Mesadas (Trancas)—26°27' 65°30'.
 15. Agua Rosada (Trancas)—26°22' 65°26'.
 Agua Rosada, San Pedro de Colalao (Trancas)—26°22' 65°26'.
 16. San Pedro de Colalao (Trancas)—26°14' 65°29'.
 San Pedro de Colalao, Junta de los Ríos (Trancas)—26°14' 65°29'.
 17. San Fernando (Trancas)—26°22' 65°27'.
 18. San Miguel de Tucumán, 17 km NW (Tafí Viejo)—26°41' 65°18'.
 19. El Simbolar (Trancas)—26°14' 65°23'.
 20. Quebrada del Toro (Trancas)—26°18' 65°21'.
 21. El Portezuelo (Trancas)—26°08' 65°27'.
 22. San Miguel de Tucumán, 25 km NW (Tafí Viejo)—26°38' 20°12'.
 23. Leocadio Paz (Trancas)—26°09' 65°18'.
 24. Trancas (Trancas)—26°13' 65°17'.
 25. Rearte Norte (Trancas)—26°06' 65°28'.
 26. Las Juntas, 22 km W Choromoro on Hwy 312, 3,500 ft. (Trancas)—26°24' 65°31'.
 27. La Higuera (Trancas)—26°23' 65°26'.
 28. Ñorco, 2500 m (Trancas)—26°29' 65°22'.
 Ñatnorco, Vipos, 2500 m (Trancas)—26°29' 65°22'.
 29. Vipos (Trancas)—26°29' 65°22'.
 Vipos, 500 m (Trancas)—26°29' 65°22'.
 30. Estancia San Pedro, Vipos (Trancas)—26°29' 65°22'.
 Vipos, Estancia San Pedro (Trancas)—26°29' 65°22'.
 31. Ticucho (Trancas)—26°31' 65°15'.
 32. Tapia (Trancas)—26°36' 65°18'.
 Tapia, 500 m (Trancas)—26°36' 65°18'.
 Tapia de Tucumán, 600 m (Trancas)—26°36' 65°18'.
 33. Raco, Sierra San Javier (Tafí Viejo)—26°38' 65°26'.
 34. Cuesta del 25, Ruta 9, entrada al Cadillal (Tafí Viejo)—26°37' 65°12'.
 El Cadillal (Tafí Viejo)—26°37' 65°12'.
 El Cadillal Dike, 25 km NW San Miguel de Tucumán (Tafí Viejo)—26°37' 65°12'.
 El Cadillal, Estación de Piscicultura (Tafí Viejo)—26°37' 65°12'.
 El Cadillal, 25 km N San Miguel de Tucumán (Tafí Viejo)—26°37' 65°12'.

- El Cadillal, Usina (Tafí Viejo)—26°37' 65°12'.
 Río Loro (Burruyacú)—26°37' 65°12'.
35. Aguas Chiquitas (Burruyacú)—26°37' 65°12'.
 Aguas Chiquitas, El Cadillal, 800m (Burruyacú)—26°37' 65°12'.
 Aguas Chiquitas, Sierras de Medina, 800m (Burruyacú)—26°37' 65°12'.
 Aguas Chiquitas, 25 km NE San Miguel de Tucumán, 800 m (Burruyacú)—26°37' 65°12'.
 Reserva Provincial El Cadillal "Aguas Chiquitas" (Burruyacú)—26°37' 65°12'.
 Reserva Provincial "Aguas Chiquitas" El Cadillal (Burruyacú)—26°37' 65°12'.
 Sierras de Medina, Aguas Chiquitas, "El Cadillal" (Burruyacú)—26°37' 65°12'.
36. Tranquitas (Burruyacú)—26°37' 65°02'.
37. El Duraznito (Tafí Viejo)—26°40' 65°11'.
38. Taficillo (Tafí Viejo)—26°42' 65°17'.
39. Ticucho, entrando por cola del Dique el Cadillal (Trancas)—26°31' 65°14'.
 Ticucho, cola de embalse El Cadillal (Trancas)—26°31' 65°14'.
 Ticucho, 3 km E, cola de Cadillal Dique (Trancas)—26°31' 65°14'.
40. Timbó Nuevo (Burruyacú)—26°42' 65°07'.
41. El Timbó (Burruyacú)—26°42' 65°08'.
42. Cerro San Javier (Yerba Buena)—26°47' 65°24'.
 San Javier (Yerba Buena)—26°47' 65°23'.
43. San Javier, Ciudad Universitaria (Tafí Viejo)—26°48' 65°23'.
44. Tafí Viejo (Tafí Viejo)—26°44' 65°16'.
45. Horco Molle (Yerba Buena)—26°45' 65°21'.
 Horco Molle, 15 km W San Miguel de Tucumán (Yerba Buena)—26°45' 65°21'.
 Horco Molle, 15 km SW San Miguel de Tucumán (Yerba Buena)—26°45' 65°21'.
 Horco Molle, 25 km NW San Miguel de Tucumán (Yerba Buena)—26°45' 65°21'.
 Biological Reserve at Horco Molle, 2,400 ft. (Yerba Buena)—26°45' 65°21'.
 Biological Reserve at Horco Molle, near residencia, 2,400 ft. (Yerba Buena)—26°45' 65°21'.
46. Yerba Buena (Yerba Buena)—26°49' 65°19'.
47. Marcos Paz (Yerba Buena)—26°49' 65°17'.
48. San Pablo, 11 km al NO (Lules)—26°52' 65°25'.
 Quebrada de Lules, 11 km NW San Pablo (Lules)—26°52' 65°25'.
49. Muñecas (Capital)—26°47' 65°15'.
50. Los Vázquez (Capital)—26°50' 65°13'.
 Los Vázquez, 445m (Capital)—26°50' 65°13'.
 San Miguel de Tucumán (Capital)—26°50' 65°13'.
 Tucumán, 450 m (Capital)—26°50' 65°13'.
 San Miguel de Tucumán, 450m (Capital)—26°50' 65°13'.
 Capital, San Miguel de Tucumán (Capital)—26°50' 65°13'.
 Ciudad Capital (Capital)—26°50' 65°13'.
 Ciudad Tucumán, casa céntrica (Capital)—26°50' 65°13'.
 Instituto Lillo (Capital)—26°49' 65°13'.
 Instituto Lillo, San Miguel de Tucumán (Capital)—26°49' 65°13'.
 Plaza Independencia, San Miguel de Tucumán (Capital)—26°50' 65°13'.
51. Ingenio Amalia (Capital)—26°52' 65°13'.
52. Villa Nogués (Lules)—26°51' 65°23'.
 Cumbres de San Pablo—(probably 55).
53. El Manantial (Lules)—26°51' 65°17'.
54. Ingenio San Pablo (Famaillá)—26°54' 65°19'.
 San Pablo (Lules)—26°52' 65°19'.
55. Ingenio Lules (Lules)—26°55' 65°20'.
56. Cerro de Raco, Trancas (Tafí Viejo)—26°43' 65°30'.
57. 4 km W of junction 338 and road to Horco Molle, on road to San Javier, 2,750 ft. (Yerba Buena)—26°49' 65°21'.
58. Lules, 3 km W (Lules)—26°56' 65°23'.
59. La Reducción (Lules)—27°57' 65°22'.
60. Las Talas (Leales)—27°00' 65°17'.
 Las Talas, 4 km al N de Bella Vista (Leales)—27°00' 65°17'.
61. El Bracho (Cruz Alta)—26°59' 65°11'.
62. Banda del Río Salí (Cruz Alta)—26°50' 65°10'.
63. Alderetes (Cruz Alta)—26°49' 65°08'.

64. San Miguel de Tucumán, 28 km NE (Burruyacú)—26°37' 65°07'.
San Miguel de Tucumán, 29 km NE (Burruyacú)—26°37' 65°07'.
65. El Naranjo (Burruyacú)—26°40' 65°03'.
66. Río Nío (Burruyacú)—26°26' 64°56'.
67. La Ramada (Burruyacú)—26°42' 64°57'.
68. Cerro del Campo (Burruyacú)—26°35' 64°57'.
Cerro del Campo, 800 m (Burruyacú)—26°35' 64°57'.
Cerro del Campo, 1800 m (Burruyacú)—26°35' 64°57'.
69. El Cajón (Burruyacú)—26°32' 64°52'.
Piedra Tendida (Burruyacú)—26°30' 64°52'.
Piedra Tendida, 12 km WNW Burruyacú, along Río Cajón, 2,500 ft. (Burruyacú)—26°30' 64°52'.
70. Cajón de la Ovejería, Chorrillos (Burruyacú)—26°21' 64°55'.
71. Estancia El Cavao (Burruyacú)—26°30' 64°45'.
72. Agua Colorada (Burruyacú)—26°26' 64°53'.
73. Burruyacú (Burruyacú)—26°30' 64°45'.
Burruyacú, 1300 m (Burruyacú)—26°30' 64°45'.
74. Anta Mapú (Burruyacú)—26°31' 64°43'.
75. Garmendia, Departamento Burruyacú (Burruyacú)—26°34' 64°33'.
Gobernador Garmendia (Burruyacú)—26°34' 64°33'.
76. Gobernador Piedrabuena (Burruyacú)—26°40' 64°40'.
Piedra Buena (Burruyacú)—26°44' 64°40'.
77. Santa Rosa de Leales (Leales)—27°09' 65°15'.
78. Leales (Leales)—27°12' 65°18'.
79. Tacanas (Leales)—27°08' 64°49'.
80. Los Puestos (Leales)—27°17' 65°00'.
81. Nueva España (Leales)—27°16' 65°12'.
82. Los Romanos (Leales)—27°24' 65°08'.
83. Atahona (Simoca)—27°25' 65°17'.
84. Chicligasta (Simoca)—27°28' 65°07'.
85. Monteagudo (Simoca)—27°31' 65°17'.
86. Pozo Hondo (Graneros)—27°49' 65°20'.
87. La Cocha (La Cocha)—27°47' 65°34'.
La Cocha, 380m (La Cocha)—27°47' 65°34'.
88. Santa Ana Reserva Provincial (Río Chico and J. B. Alberdi)—27°30' 65°55'.
89. Dique San Ignacio (La Cocha)—27°44' 65°40'.
La Cocha, Dique San Ignacio (La Cocha)—27°44' 65°40'.
90. Graneros (Graneros)—27°39' 65°27'.
91. Los Sarmientos (Río Chico)—27°24' 65°41'.
92. Monte Bello (Río Chico)—27°22' 65°45'.
93. Concepción (Chicligasta)—27°20' 65°35'.
94. Dique Escaba (J. B. Alberdi)—27°40' 65°46'.
Embalse Escaba (J. B. Alberdi)—27°40' 65°46'.
95. Las Higuierillas, 0.5 km N on Hwy 308, 3,000 ft. (J. B. Alberdi)—27°47' 65°50'.
Las Higuierillas, 5 km N on Hwy 308, 2,900 ft. (J. B. Alberdi)—27°44' 65°50'.
96. Río de Los Sosa, km 19.7, Ruta 307, camino a Tafí del Valle, 700 m (Monteros)—27°05' 65°40'.
Río de Los Sosa, km 19.7, Ruta 307, camino a Tafí del Valle, 750 m (Monteros)—27°05' 65°40'.
Ruta 307, km 19.7, camino a Tafí del Valle, 750 m (Monteros)—27°05' 65°40'.
97. Las Pavas (Chicligasta)—27°15' 65°52'.
Las Pavas, Aconquija (Chicligasta)—27°15' 65°52'.
98. Nevados del Aconquija, Glacial del Cochuna, 4550 m (Chicligasta)—27°13' 66°08'.
99. Aconquija (Chicligasta)—27°13' 66°08'.
Aconquija, 3000 m (Chicligasta)—27°13' 66°08'.
100. Morro del Zarzo, 5000 m (Tafí del Valle)—27°00' 65°54'.
Sierra del Aconquija (Monteros and Tafí del Valle)—27°00' 65°55'.
101. Piedras Coloradas (Monteros)—27°04' 65°40'.
102. Monteros (Monteros)—27°10' 65°30'.
Escuela Normal, Monteros (Monteros)—27°10' 65°30'.
103. La Heladera, 2 km below, along Hwy 307, 3,500 ft. (Monteros)—27°01' 65°40'.
104. El Indio, Ruta 307 (Monteros)—27°02' 65°40'.
105. El Naranjal (Monteros)—27°02' 65°41'.
106. Casa de Piedra, Río Los Sosa (Monteros)—27°03' 65°37'.

- Casa de Piedra, Ruta 307, km 23.9, 850m (Monteros)—27°03' 65°37'.
 Río Los Sosas, Ruta 307, km 23.9 (Monteros)—27°04' 65°40'.
 Río de Los Sosa, km 23.9, Ruta 307, camino a Tafí del Valle, 850 m (Monteros)—27°04' 65°40'.
 Río de Los Sosa, km 24.9, Ruta 307, camino a Tafí del Valle, 850 m (Monteros)—27°04' 65°40'.
 Ruta 307, km 23.9, 850 m (Monteros)—27°04' 65°40'.
107. Playa Larga (Monteros)—27°03' 65°40'.
 108. Ingenio Santa Lucía (Monteros)—27°06' 65°31'.
 109. Acheral (Monteros)—27°07' 65°27'.
 110. Río Colorado (Famaillá)—27°09' 65°21'.
 111. El Nogalar, km 43, Ruta 307, 1700m (Monteros)—27°01' 65°40'.
 El Nogalar, = Río los Sosa, km 43.0, Ruta 307 (Monteros)—27°01' 65°40'.
 112. Caspichango (Monteros)—27°04' 65°30'.
 113. La Fronterita (Famaillá)—27°02' 65°28'.
 114. La Angostura (Tafí del Valle)—26°55' 65°41'.
 115. Tafí del Valle (Tafí del Valle)—26°52' 65°41'.
 116. La Quebradita, 12 km W, km 81 along Hwy 307, 9,500 ft. (Tafí del Valle)—26°44' 65°45'.
 117. La Ciénaga, 2500 m (Tafí del Valle)—26°46' 65°39'.
 118. Mala Mala (Lules)—26°47' 65°33'.
 119. El Infiernillo (Tafí del Valle)—26°44' 65°47'.
 120. Laguna Huaca Huasi (Tafí Viejo)—26°41' 65°44'.
 Laguna Huaca Huasi, Cumbres Calchaqués, approximately 4250 m (Tafí Viejo)—26°41' 65°44'.
 121. Near the campground near Cochuna (Concepción)—27°18' 65°55' (135).
 Campo de la Gallina, Serranía de Quilmes o El Cajón (Tafí del Valle)—(not located).
 Cerro de Tafí Viejo, 2400 m (Tafí Viejo)—26°42' 65°17' and 26°44' 65°16 (between 38 and 44).
 Cumbres del Aconquija—(no specific locality) 27°13' 66°08' (98, 99) to 27°00' 65°55' (100).
 Departamento Burruyacú—(no specific locality) 26°30' 64°55'.
 Departamento Chicligasta—(no specific locality) 27°20' 65°35'.
 Departamento Famaillá—(no specific locality) 26°55' 65°30'.
 Iglesia—(not located).
 La Cuesta (Trancas)—(not located).
 La Florida Reserva Provincia—(no specific locality).
 Las Talitas (Monteros)—(not located).
 Puesto Portadera (Burruyacú)—(not located).
 Sierra de Tucumán—(no specific locality).
 Tafí, 2000 m—(no specific locality).
 Tucumán—(no specific locality).
 Tucumán, 1500 m—(no specific locality).